SUPPLEMENTAL PROGRAM ENVIRONMENTAL ASSESSMENT

NATIONAL DISTRESS AND RESPONSE SYSTEM MODERNIZATION PROJECT

Prepared for the

United States Coast Guard

by URS Corporation

September 2002

U.S. COAST GUARD

United States Coast Guard

SUPPLEMENTAL PROGRAM ENVIRONMENTAL ASSESSMENT

FOR

NATIONAL DISTRESS AND RESPONSE SYSTEM MODERNIZATION PROJECT (NDRSMP)

This USCG Supplemental Program Environmental Assessment (SPEA) was prepared in accordance with Commandant's Manual Instruction M16475.1D and is in compliance with the National Environmental Policy Act of 1969 (P.L. 91-190) and the Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, dated November 28, 1978 (40 CFR Parts 1500-1508).

This SPEA serves as a concise public document to briefly provide sufficient evidence and analysis for determining the need to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

This SPEA describes the proposed action, the need for the proposed project, the alternatives, and the potential environmental impacts resulting from the proposed project and its alternatives. This SPEA also contains a comparative analysis of the proposed project and alternatives, a statement of the environmental significance of the preferred alternative, and a list of the agencies and persons consulted during its preparation.

Reviewed by:

09 SEP 2002
Date

Donna M. Meyer
Environmental Program Manager
G-AND

Reviewed for Legal Sufficiency:

10 Sept 2002
Date

Francis H. Esposito
Office of Environmental Law
G-LEL

In reaching my decision on the USCG's proposed action, I have considered the information contained in this Supplemental Program Environmental Assessment and the potential for environmental impacts as a result of undertaking the proposed action.

Approved by:

12 SEP 2002
Date

R. T. Hewitt, Captain
Project Manager – G-AND
NDRSMP

Supplemental Program Environmental Assessment

National Distress and Response System Modernization Project

Prepared For:

United States Department of Transportation

United States Coast Guard

National Distress and Response System Modernization Project (G-AND)

Washington, D.C.

By:

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September 2002

COVER SHEET

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Responsible Agency: United States Department of Transportation, United States Coast Guard

Proposed Action: Deployment and Installation of the National Distress and Response System Modernization Project

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Report Designation: Supplemental Program Environmental Assessment (SPEA)

Abstract: The United States Coast Guard prepared a Programmatic Environmental Assessment (PEA) in July 1998 to evaluate the potential environmental impacts of the proposed National Distress and Response System Modernization Project (NDRSMP). Four technology modernization alternatives were selected for analysis: (1) No Action; (2) Rehabilitated or Upgraded System; (3) Dual Mode very high frequency (VHF) and/or ultra high frequency (UHF) Network; and (4) Multi-Mission Satellite, Cellular, VHF Network. The PEA evaluated potential impacts of these alternatives on the following environmental resource areas: geology and soils, hydrology and water quality, biological resources, land use, visual resources, hazardous materials and wastes, air quality, cultural resources, noise, transportation and circulation, socioeconomics, and radio waves.

Substantial time has passed since the 1998 PEA was published. The USCG is now considering four methods of deployment for the NDRSMP: (1) No Action; (2) Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS; (3) Deploying New Communications Technology to a Leased Commercial Tower Site; and (4) Deploying New Communications Technology to a New Undeveloped Site. This SPEA provides an update to the effects noted for environmental resource areas assessed in the 1998 PEA, assesses effects to environmental resource areas that were not assessed in that study, and assesses the deployment of the selected technology. This SPEA identifies, describes, and evaluates the potential environmental impacts that could result from implementation of the NDRSMP, taking into consideration cumulative impacts from other actions. The USCG has prepared this SPEA to assess the effects of modernizing the NDRS through deployment of the preferred communications technology (Alternative C in the 1998 PEA) to an existing antenna tower site that supports the NDRS, by leasing space on an existing commercial tower site, or by constructing a new antenna tower site.

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ACRONYMS AND ABBREVIATIONS

Acronyms and Abbreviations

ACHP	Advisory Council on Historic Preservation
ANSI	American National Standards Institute
APE	area of potential effects
AQCR	air quality control region
BLM	Bureau of Land Management
BMP	best management practice
CAA	Clean Air Act
CBRA	Coastal Barrier Resources Act
CBRS	Coastal Barrier Resources System
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
CO	carbon monoxide
COMDTINST	Commandant Instruction
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
CZMP	Coastal Zone Management Plan
dB	decibel
dBA	A-weighted sound level
DGPS	digital global positioning system
DOT	Department of Transportation
DSC	digital selective calling
EIS	Environmental Impact Statement
EO	Executive Order
FCC	Federal Communications Commission
FONSI	Finding of No Significant Impact
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FPPA	Farmland Protection Policy Act
HLS	high-level sites
KHz	kilohertz
L_P	sound pressure level
MHz	megahertz
MOA	Memorandum of Agreement
MPRSA	Marine Protection, Research, and Sanctuaries Act
NAAQS	National Ambient Air Quality Standards
NDRS	National Distress and Response System
NDRSMP	National Distress and Response System Modernization Project
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Association
NOA	Notice of Availability

NOI	Notice of Intent
NO_X	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NWP	Nationwide Permit
O_3	ozone
PAWSS	Ports and Waterways Safety System
PEA	Programmatic Environmental Assessment
PEL	permissible exposure limits
PM_{10}	particulate matter equal to or less than 10 microns in aerodynamic diameter
POV	personally operated vehicle
ppt	parts per thousand
PSD	prevention of significant deterioration
RCRA	Resource Conservation and Recovery Act
RF	radio frequency
RFP	request for proposal
SDWA	Safe Drinking Water Act
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_X	sulfur oxides
SPCC	Spill Prevention Control and Countermeasures
SPEA	Supplemental Program Environmental Assessment
SRCS	Short Range Communication System
STB	Surface Transportation Board
TCP	traditional cultural place
THPO	Tribal Historic Preservation Officer
tpy	tons per year
TSP	total suspended particulate
UHF	ultra high frequency
U.S.	United States
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USLSS	United States Life Saving Service
VHF-FM	very high frequency – frequency modulation
VOC	volatile organic compound
VTS	vessel traffic service
WQM	water quality management

CHAPTER 1

PURPOSE OF AND NEED FOR ACTION

CHAPTER 1

PURPOSE OF AND NEED FOR ACTION

This chapter is comprised of six parts: a summary of environmental study requirements, background information about the National Distress and Response System Modernization Project (NDRSMP), a statement of the purpose of and need for the action, a description of the scope of the environmental review, a description of the public participation process for this project, and a description of the organization of this document.

1.1 Summary of Environmental Study Requirements

The National Environmental Policy Act of 1969 (NEPA) requires that Federal agencies consider potential environmental consequences of proposed and alternative actions in their decision-making process. NEPA encourages Federal agencies to protect, restore, or enhance the environment through well-informed decisions. The Council on Environmental Quality (CEQ) was established under NEPA for the purpose of implementing and overseeing Federal policies as they relate to this process. The CEQ regulations provide the implementation guidelines for NEPA and require Federal agencies to develop agency-specific NEPA guidelines.

The United States Coast Guard (USCG) is an agency under the Department of Transportation (DOT), and is subject to DOT regulations including those promulgated under NEPA. DOT Order 5610.1C, *Procedures for Considering Environmental Impacts*, sets the policy and procedures that supplement the CEQ regulations and applies them to DOT programs. The USCG has also developed NEPA implementation regulations, which are found in Commandant Instruction (COMDTINST) M16475.1D, *National Environmental Policy Act Implementing Procedures for Considering Environmental Impacts*. This instruction establishes policy and procedures to ensure timely environmental review for appropriate USCG actions. The instruction addresses the policy and responsibilities for USCG implementation of NEPA, pertinent regulations, and other related laws and legislation (USCG 2000). This Supplemental Program Environmental Assessment (SPEA) is completed pursuant to the CEQ regulations, DOT Order 5610.1C, and COMDTINST M16475.1D.

1.2 Background

The USCG is required by Federal and international statutes to carry and maintain communication via very high frequency-frequency modulation (VHF-FM) radio, establishing it as the standard means for maritime communication. Other Federal and international statutes task the USCG with additional responsibilities, such as requirements to operate facilities for the promotion of search and rescue operations, to enforce Federal laws and statues, and to assist Federal and State agencies. These statutes,

which are summarized in Appendix A, provide the regulatory framework for the NDRSMP.

The National Distress and Response System (NDRS), the USCG's short range VHF-FM radio system, consists of approximately 300 remotely controlled VHF radios and antenna high-level sites (HLS) located throughout the terrestrial regions of the continental United States (including the Great Lakes and all major inland bays and waterways), Alaska, Hawaii, the Caribbean, and Guam. The NDRS forms the backbone of the USCG's Short Range Communication System (SRCS). The NDRS uses VHF-FM radios to provide two-way voice communications coverage in coastal areas and navigable inland waterways where commercial or recreational traffic exists. The NDRS's primary mission is to provide the USCG with a means to monitor the international VHF-FM distress frequency and to coordinate search and rescue response operations. Its secondary mission is to provide command and control communications for virtually all USCG missions.

Although the modernization project has not changed since 1998, the project's title has been revised to "National Distress and Response System Modernization Project" to reflect the importance of *response* in this communications system. In 1998, NDRSMP began the NEPA process to evaluate the potential impacts of the proposed National Distress System Modernization Project by preparing a PEA (hereinafter referred to as the 1998 NDS PEA). The 1998 NDS PEA evaluated the potential impacts of the NDRS modernization, and included as alternatives, different modernization technologies. Alternative C: Dual Mode VHF and/or Ultra High Frequency (UHF) Network, was chosen as the preferred alternative. Alternative C involves replacing the existing analog network with Dual Mode (digital and analog) transceivers.

Modernization of the NDRS employs a two-phased acquisition strategy. Design work began in late 1999 with the release of a request for proposal (RFP) for Phase I: Concept and Technology Development. In Phase I, three contractors developed the functional preliminary design, and demonstrated and validated the design for operational and functional suitability. The main objective of Phase I was to develop design concepts that would best satisfy the USCG mission requirements at an affordable cost, with minimum acceptable technical risk (USCG 2002a).

Phase II: System Development, Demonstration, Production, and Deployment began in early 2002, with the release of an RFP for the full-scale development of the modernized system. The RFP for Phase II was only provided to those contractors who had participated in Phase I of the NDRSMP. Phase II would consist of final completion, testing, implementation, deployment, and initial system support for the NDRSMP. The Phase II contract is expected to be awarded in September 2002, with work beginning in October 2002. The installation of the NDRSMP is scheduled for completion in 2006. The NDRSMP installation schedule is included in Appendix D. Modernization of the NDRS was Congressionally mandated by the *Department of Transportation and Related Agencies Appropriations Bill, 2002*. This bill states that the NDRS modernization would be fully deployed by fiscal year 2006.

This SPEA will assess the impacts of modernizing the NDRS through deployment of the preferred communications technology at an existing antenna tower site that supports the NDRS, by leasing space on an existing commercial tower site, or by constructing a new antenna tower site.

1.3 Purpose of and Need for Action

The current NDRS does not provide the USCG with a reliable means of meeting its multi-mission requirements. NDRS operational deficiencies are listed below and explained in detail in the 1998 NDS PEA (USCG 1998).

- obsolete/non-standard equipment
- coverage gaps
- inadequate channel capacity
- inadequate communications with public safety and other agencies
- no digital selective calling (DSC) capacity
- inadequate transmission security
- poor position locating capacity
- limited data capability
- poor caller verification assistance and recording capability
- no interface with the rest of the USCG telecommunications system

The present NDRS does not provide complete communications coverage; there are over 65 verified gaps and numerous localized coverage deficiencies. Currently the NDRS consists of approximately 300 remotely controlled VHF radios and antenna HLS, and the USCG estimates that a total of 377 sites are needed to provide full coverage of the coastal zone and inland waterways.

The current system cannot simultaneously monitor the international distress frequency and transmit from the monitoring site, and allows only one conversation on one frequency at a time. Essential communications with other Federal, State, and local agencies are often hindered or unavailable due to the lack of compatible equipment. Much of the existing equipment, installed in the 1970s, is no longer commercially available, and is becoming increasingly difficult to support. Equipment failures have necessitated the replacement of many system components that are no longer commercially available, resulting in a lack of standardization (USCG 2001a). These and other deficiencies mean that the current NDRS does not provide the USCG with a reliable means of meeting its multi-mission requirements. Based on Federal and international communications requirements (Appendix A), and numerous deficiencies in the NDRS, the USCG has identified a need for an efficient, modern, more technologically advanced system than the one currently in place.

The goal of the NDRSMP is to design an integrated system that would provide the necessary tools needed to perform the many required missions of the USCG (USCG 2001b). The purpose of the NDRSMP is to provide an efficient, cost-effective, and

technologically adequate modernized NDRS that rectifies current deficiencies and adequately supports USCG missions.

1.4 Scope of the Environmental Review

The planning process for a proposed action includes a study of the environmental issues associated with that action. Several factors contribute to the preparation of a supplement to the 1998 NDS PEA: (1) substantial time has passed since the 1998 NDS PEA was published; (2) additional resource areas, not previously assessed in the 1998 NDS PEA, have been identified for analysis; and (3) the 1998 NDS PEA evaluated alternatives for updating only the technology. This SPEA provides an update to the effects noted for environmental resource areas assessed in the 1998 NDS PEA, assesses effects to environmental resource areas that were not assessed in that study, and assesses the deployment of the selected technology. This SPEA identifies, describes, and evaluates the potential environmental impacts that could result from implementation of the NDRSMP, taking into consideration cumulative impacts from other actions. The USCG is preparing this SPEA to assess the effects of modernizing the NDRS through deployment of the preferred communications technology (Alternative C in the 1998 NDS PEA) to an existing antenna tower site that supports the NDRS, by leasing space on a commercial tower site, or by constructing a new antenna tower site.

A program environmental document is typically prepared when an agency is proposing to carry out a broad action, program, or policy. In this context, the proposed NDRSMP is a broad proposed program with national effects. The purpose of this SPEA is to provide general environmental information on the proposed action and alternatives to USCG decision-makers, expert agencies, and the interested and affected public, and to determine whether deployment of the NDRSMP has the potential for significant environmental impacts.

The SPEA analysis would enable the USCG to tier site-specific analysis as sites are identified for modernization. The USCG would continue to involve the public in these later connected actions, as appropriate, and would also prepare further, more specific, environmental analyses and documentation for them as necessary. The SPEA is considered to be a first-tier environmental review whereby subsequent tiered environmental analysis and documentation may be prepared for future individual actions and their site-specific impacts, if such analysis is not adequately covered by the SPEA.

The following resource areas are most relevant to the proposed action alternatives and will be the focus of the environmental impact analysis process:

- Noise – Potential impacts from noise generating activities that would include those related to use of heavy mechanical equipment during any construction activities.

- Air Quality – Potential air emissions impacts from use of internal combustion engines in equipment and vehicles, and fugitive dust emissions from any construction activities.

- Earth Resources – Potential impacts to geology, topography and soils from any construction activities.

- Water Resources – Potential impacts to groundwater and surface water quantity and quality.

- Infrastructure and Utilities – Potential impacts to transportation, utilities availability, drainage, and solid waste disposal.

- Hazardous Substances – Potential impacts from use of hazardous materials or generation of hazardous wastes. Potential impacts from radio waves.

- Biological Resources – Potential impacts to vegetation, wildlife (including migratory birds and wildlife or waterfowl refuges), threatened and endangered species, floodplains and wetlands.

- Cultural Resources – Potential impacts to historic and archaeological resources.

- Recreation – Potential impacts to recreational resources.

- Visual Resources – Potential impacts to aesthetics/visual resources from any construction of new antenna tower sites or addition of height to existing antenna tower sites.

- Socioeconomic Resources – Potential impacts to economy and employment.

- Land Use – Potential impacts to coastal zones, prime or unique farmlands, open space, and zoning.

- Environmental Justice – Potential impacts to low income and/or minority populations.

1.5 Public Participation

In seeking early public input on deployment of the NDRSMP, the USCG published a Notice of Intent (NOI) to prepare a SPEA in the Federal Register on May 24, 2002. The publication of the NOI initiated a 30-day public scoping period. Scoping is required by CEQ regulations and has specfic objectives to identify the affected public and agency concerns, facilitate an efficient preparation process, define issues and alternatives to be examined in detail, and to save time in the overall process.

A public information newsletter describing the NDRSMP was distributed to Federal and State agencies, and posted on the NDRSMP Home Page Internet site located at http://www.uscg.mil/hq/g-a/ndrsmp. The public information newsletter briefly described the objectives, scope, need, and purpose of the proposed action. In addition, the newsletter described the project status, preliminary resource concerns, and public and

agency participation. The 30-day public scoping period concluded on June 24, 2002. A total of five comment letters were received in response to the NOI/public information newsletter. The concerns raised in the comment letters were primarily related to avian mortality due to tower strikes and effects to historic resources as defined by the National Historic Preservation Act. Public involvement materials and comments are included in Appendix B.

The USCG has published a Notice of Availability (NOA) for the SPEA in the Federal Register, which initiated a 30-day public review of the SPEA. It is anticipated that the public comment period will end in October 2002, at which time the USCG will consider agency and public comments, as appropriate, and publish a Finding of No Significant Impact (FONSI), if appropriate, or initiate an Environmental Impact Statement (EIS), if necessary. The USCG will continue posting information on the NDRSMP Home Page Internet site to keep the public informed as to the progress/status of the NDRSMP.

1.6 Organization of the Document

This SPEA is organized into seven chapters. Chapter 1 contains a summary of the environmental study requirements, background information about the NDRSMP, a statement of the purpose of and need for the proposed action, a summary of the scope of the environmental review, a description of the public participation process for the proposed project, and a description of the organization of the SPEA. Chapter 2 describes the history of the formulation of alternatives, provides a detailed description of the alternative actions, describes the site-specific selection of preferred alternatives, and provides a comparison matrix of environmental effects for all alternatives. Chapter 3 contains a general description of the existing conditions of the biophysical resources that could potentially be affected by the NDRSMP. Chapter 4 is an analysis of the anticipated environmental consequences of deploying the NDRSMP. Chapter 5 lists preparers of this document. Chapter 6 lists persons and agencies consulted in the preparation of this SPEA. Chapter 7 is a list of source documents relevant to the preparation of this SPEA.

CHAPTER 2

DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

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DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This chapter is composed of four parts: a brief history of the formulation of alternatives, a detailed description of the alternative actions, site-specific selection of preferred alternatives, and a comparison summary of environmental effects of all alternatives.

2.1 History of the Formulation of Alternatives

The 1998 NDS PEA included, as alternatives, different modernization technologies for the NDRSMP. The USCG proposes to modernize the NDRS by deploying new communications technology (Alternative C: Dual Mode VHF/UHF Network from the 1998 NDS PEA) throughout the terrestrial regions of the continental United States (U.S.), Alaska, Hawaii, the Caribbean, and Guam.

Alternatives for this SPEA were developed based on the need for the USCG to modernize the NDRS to provide two-way voice and data communications between shore stations, vessels, aircraft, and vehicles in the maritime environment. Currently, the NDRS consists of approximately 300 remotely controlled VHF radios and antenna HLS. The USCG estimates that a total of 377 sites are needed to provide coverage for current gap areas and localized coverage deficiencies. The USCG intends to modernize the current system by deploying the new communications technology to existing antenna tower sites that support the NDRS. However, because coverage gaps exist in the current system, the USCG must consider alternative deployment strategies in addition to modernizing the current NDRS antenna tower sites.

The USCG has NDRS equipment located on both government- and contractor-owned antenna towers. For contractor-owned antenna towers, the USCG leases space for the NDRS equipment. Therefore, the USCG is considering the alternative of modernizing the current system by deploying new communications technology to contractor-owned antenna sites that are not currently in use for the NDRS.

In some areas where coverage gaps exist, there are no government or contractor-owned antenna tower sites available. In addition, it is possible that the USCG would not be able to procure space for the NDRS equipment on an existing contractor-owned antenna tower site. Therefore, the USCG is considering the alternative of deploying the new communications technology to undeveloped sites where construction of a new antenna tower would be required.

All deployment alternatives assessed in this SPEA, with the exception of the No Action Alternative, would be utilized to deploy the system. This SPEA is intended to provide

the USCG decision-makers with information on the potential environmental impacts of each deployment alternative to facilitate the most appropriate alternative for specific tiered siting.

2.2 Alternatives

2.2.1 Alternative A – No Action Alternative

Under the No Action Alternative, the NDRS would not be modernized. The system would continue to operate with the existing network of analog transceivers located on government- and contractor-owned antenna tower sites. No new communications equipment would be installed on existing antenna tower sites that support the NDRS, no additional space would be leased on existing commercial tower sites (those not currently used for the NDRS), and no new antenna tower sites would be constructed on undeveloped sites.

The No Action Alternative would not satisfy the need of the USCG for an efficient, modern, more technologically advanced NDRS. NDRS operational deficiencies would not be corrected; therefore, the USCG would not have a reliable means of meeting its multi-mission requirements. The USCG's ability to perform search and rescue responsibilities and conduct necessary command and control functions would continue to deteriorate. Equipment non-availability, existing coverage gaps, and inadequate channel capacity would continue to contribute to degraded command and control and unanswered calls for assistance. Maintenance costs and configuration management difficulties would continue to increase. Eventually it would be impossible to keep the current network operational with available resources and the system would experience frequent and widespread failure. The system's inability to determine the location of distressed vessels or hoax callers would result in lost lives and wasted resources. After February 1, 2005, it may be difficult to contact Safety of Life at Sea ships (cargo and passenger ships on international voyages) because the current system does not have DSC capability. In addition the USCG would not be able to meet the congressional mandate to modernize the NDRS as stated in *Department of Transportation and Related Agencies Appropriations Bill, 2002.*

Although the No-Action Alternative is not a reasonable alternative; as required by NEPA, the USCG is analyzing this alternative to provide a baseline for decision-makers and the public in order to compare the magnitude of environmental effects of the No Action Alternative with the action alternatives.

2.2.2 Alternative B – Modernize the NDRS by Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS

Under Alternative B, the NDRS would be modernized by deploying new communications technology to existing antenna tower sites that support the NDRS in the marine and terrestrial regions of the continental U.S., Alaska, Hawaii, the Caribbean, and Guam where the USCG has jurisdiction and where commercial and/or marine recreational

traffic exists. Modernizing existing antenna sites would involve replacing equipment (e.g., tower, antenna), possibly increasing the height of the tower, and the addition of new NDRS communications equipment.

The existing sites are those currently in use for the NDRS, and are either government- or contractor-owned, with most government-owned antenna tower sites constructed in the 1970s. Many times, these existing sites have several users and types of communications equipment co-located on one tower. In the current system, towers typically range from 50 to 300 feet in height and are often self-supporting (i.e., do not require guy wires for lateral support). Antenna sites are typically smaller than 0.2 acre and fenced with an 8-foot hurricane fence with three strands of barbed wire across the top. Structures within a typical site include the antenna tower and a structure for housing electronic equipment (approximately 200 square feet). In some cases the antenna tower is located on another structure such as a water tower or smoke stack. The sites are typically unmanned and electricity and telecommunications lines are the only utilities. Some sites have generators for backup electrical power, which include a 40-60 gallon fuel tank. There is typically no vegetation within the fenced area housing the antenna tower site. The majority of the antenna tower sites are located within the coastal zone. Further information concerning existing antenna tower sites can be found in Chapter 3, Existing Environment.

Under this alternative, three deployment scenarios are possible: (1) the tower present at the existing site meets all requirements for installing new equipment and does not require an increase in height; (2) the tower present at the existing site is suitable for installing the equipment but an increase in height is necessary; and (3) the tower present at the existing site is not suitable for installing the equipment and must be demolished and replaced with a new tower.

Alternative B would satisfy the need of the USCG for an efficient, modern, more technologically advanced NDRS, except that coverage gaps could not be completely eliminated by implementing this alternative alone. Increasing the height of some existing NDRS antenna towers could eliminate some, but not all coverage gaps. Because no new NDRS antenna sites would be created, coverage gaps would continue to exist, resulting in unanswered calls for assistance.

2.2.3 Alternative C – Modernize the NDRS by Deploying New Communications Technology to a Leased Commercial Tower Site

Under Alternative C, the NDRS would be modernized by deploying new communications technology to leased commercial, contractor-owned antenna tower sites in the marine and terrestrial regions of the continental U.S., Alaska, Hawaii, the Caribbean, and Guam where the USCG has jurisdiction and where commercial and/or marine recreational traffic exists. The sites included in this alternative are sites that do not currently support the NDRS. As described in Alternative B, these existing sites can have several users and types of communications equipment co-located on one tower. The USCG would enter into a lease agreement with the service provider to install the NDRS equipment. Site components and surrounding area characteristics are described in Section 2.2.2 above and in Chapter 3, Existing Environment.

Alternative C would satisfy the need of the USCG for an efficient, modern, more technologically advanced NDRS, except that coverage gaps could not be completely eliminated by implementing this alternative alone. Because no new antenna sites would be created, coverage gaps would continue to exist, resulting in unanswered calls for assistance.

Modernizing the NDRS by implementing this alternative would not utilize all of the existing NDRS antenna tower sites, resulting in increased costs for deployment, increased leasing costs, and under-utilization of some existing tower structures. Any NDRS equipment on existing NDRS antenna tower sites not utilized would be removed and disposed.

2.2.4 Alternative D – Modernize the NDRS by Deploying New Communications Technology to a New Undeveloped Site

Under Alternative D, the NDRS would be modernized by deploying new communications technology to undeveloped sites in the marine and terrestrial regions of the continental U.S., Alaska, Hawaii, the Caribbean, and Guam where the USCG has jurisdiction and where commercial and/or marine recreational traffic exists. This alternative would include construction of new antenna towers. Site components are described in Section 2.2.2 above. Information concerning existing environmental conditions at new antenna tower sites can be found in Chapter 3, Existing Environment.

As noted in the 1998 NDS PEA, the USCG has established the following hierarchy for the selection of new antenna sites: (1) USCG-owned and operated sites, (2) Federally owned sites, (3) State-owned sites, and (4) privately owned sites.

Establishing a new site would involve:

- grading the site
- constructing cement foundations as a platform to support a steel antenna tower
- constructing an access road
- laying cable to the tower
- installing utilities (electricity and telecommunications lines), back-up generators and fuel sources, batteries
- constructing a structure for housing electronic equipment
- installing security systems and fencing

Alternative D would satisfy the need of the USCG for an efficient, modern, more technologically advanced NDRS. The NDRS operational deficiencies would be corrected, and the USCG would have a reliable means of meeting its multi-mission

requirements. However, modernizing the NDRS by implementing this alternative would not utilize the existing NDRS antenna tower sites, resulting in increased costs for deployment and under-utilization of existing tower structures. NDRS equipment on existing NDRS antenna tower sites would be removed and disposed. As discussed in Chapter 4 and summarized in Table 2-2, there are also increased environmental risks associated with construction on undeveloped sites.

2.3 Site-Specific Selection of Preferred Alternatives

The alternatives presented above were analyzed in terms of their ability to meet the purpose of and need for the NDRSMP. Specifically, they were screened in terms of their ability to correct deficiencies in the current NDRS. Although Alternative A does not meet the purpose and need of the NDRSMP, it is analyzed in this SPEA, as required by CEQ NEPA regulations, to provide a baseline by which the USCG and the public can compare the environmental impacts of the no action alternative against the action alternatives.

As noted in Table 2-1 below, Alternatives B and C would not correct all NDRS deficiencies because neither would provide continuous comprehensive communications coverage. Alternative B utilizes only existing NDRS sites; therefore, as noted in Section 2.2.2, coverage gaps would remain when using this alternative alone. Alternative C utilizes only commercial antenna tower sites; therefore, as noted in Section 2.2.3, coverage gaps would remain when using this alternative alone. In addition, Alternative C would not utilize the existing antenna tower sites that support the NDRS, resulting in increased costs for deployment and under-utilization of existing tower structures. Alternative D corrects the NDRS deficiencies; however, implementing Alternative D as the sole means of deploying the NDRSMP would not utilize existing antenna tower sites that support the NDRS or other commercial antenna tower sites, resulting in increased costs for deployment and under-utilization of existing tower structures. Alternative D would also result in increased environmental risks associated with construction on undeveloped sites (see Chapter 4 and Table 2-2).

As noted previously, this SPEA is intended to provide the USCG decision-makers with information on the potential environmental impacts of each deployment alternative to facilitate the most appropriate alternative for specific tiered siting. As such, all alternatives are carried forward and analyzed in detail so that site-specific NEPA analysis can be tiered from any of the alternatives presented. The USCG has established the following deployment priorities for the NDRSMP:

1) utilization of existing NDRS antenna tower sites
2) utilization of existing leased contractor-owned antenna tower sites that do not currently support the NDRS
3) utilization of new sites where construction of the antenna tower would be required.

Table 2-1 Alternatives Screening Matrix

NDRS Deficiencies	Alternative A No Action	Alternative B Deploy to Existing Antenna Tower Sites that Support the NDRS	Alternative C Deploy to a Leased Commercial Tower Site	Alternative D Deploy to a New Undeveloped Site
obsolete/non-standard equipment	N	Y	Y	Y
coverage gaps	N	N	N	Y
inadequate channel capacity	N	Y	Y	Y
inadequate communications with public safety and other agencies	N	Y	Y	Y
no digital selective calling capacity	N	Y	Y	Y
inadequate transmission security	N	Y	Y	Y
poor position locating capacity	N	N	N	Y
limited data capability	N	Y	Y	Y
poor caller verification assistance	N	Y	Y	Y
no interface with the rest of the USCG telecommunications system	N	Y	Y	Y

Y= corrects deficiency
N= does not correct deficiency

2.4 Comparison Matrix of Environmental Effects of All Alternatives

Table 2-2 compares and summarizes the environmental effects of each of the alternatives discussed in Section 2.2.

Table 2-2 Comparison Summary of Environmental Effects

Resource	Alternative A No Action	Alternative B Modernize the NDRS by Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS	Alternative C Modernize the NDRS by Deploying New Communications Technology to a Leased Commercial Tower Site	Alternative D Modernize the NDRS by Deploying New Communications Technology to a New Undeveloped Site
Noise	No change from baseline conditions.	Short-term increase in noise during construction activities associated with equipment installation and possible antenna tower modification/ construction.	Short-term increase in noise during construction activities associated with equipment installation.	Short-term increase in noise during construction activities associated with equipment installation and antenna tower construction. Long-term increase in noise from intermittent generator use.
Air Quality	No change from baseline conditions.	Short-term increase in emissions from construction activities. Long-term increase in emissions from generator use. All increases are less than 0.04 ton per year.	Short-term increase in emissions from construction activities. Long-term increase in emissions from generator use. All increases are less than 0.04 ton per year.	Short-term increase in emissions from construction activities. Long-term increase in emissions from generator use. All increases are less than 0.8 ton per year.
Earth Resources	No change from baseline conditions.	No change from baseline conditions.	No change from baseline conditions.	Ground disturbance from construction activities.
Water Resources	No change from baseline conditions.	Limited short-term impacts to surface water quality from construction activities associated with equipment installation and possible antenna tower modification/construction.	No change from baseline conditions.	Short-term impacts to surface water quality from construction activities associated with equipment installation and antenna tower construction. Potential for long-term impacts to surface water flow if new towers are constructed in or adjacent to surface water features.
Infrastructure/ Utilities	No change from baseline conditions.	No long-term change in utility consumption, short-term increase in solid waste generation, potential short-term impacts to drainage from construction activities, short-term impacts to transportation and access from construction activities.	No long-term change in utility consumption, no impacts to drainage, short-term impacts to transportation and access from construction activities.	Long-term increase in utility consumption, installation of up to two miles of utility lines, short-term increase in solid waste generation, short-term impacts to drainage from construction activities, short-term impacts to transportation and access from construction activities, up to 2 miles of roadway could be constructed.
Hazardous Substances	No change from baseline conditions.	No change from baseline conditions.	No change from baseline conditions.	Generator and 40-60 gallon fuel tank will be required. Long-term increases in RF radiation.

Table 2-2 Comparison Summary of Environmental Effects

Resource	Alternative A No Action	Alternative B Modernize the NDRS by Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS	Alternative C Modernize the NDRS by Deploying New Communications Technology to a Leased Commercial Tower Site	Alternative D Modernize the NDRS by Deploying New Communications Technology to a New Undeveloped Site
Biological Resources	No change from baseline conditions.	Potential long-term impacts to migratory birds from possible increase in antenna tower height.	No change from baseline conditions.	Potential long-term impacts to wildlife, vegetation, threatened and endangered species, and wetlands from construction activities (including road construction). Potential long-term impacts to migratory birds from antenna tower.
Cultural Resources	No change from baseline conditions.	Potential visual impacts to historic resources if tower height is increased. Potential impacts to archaeological and historic resources from ground disturbance.	No change from baseline conditions.	Potential visual impacts to historic resources from tower construction. Potential impacts to archaeological and historic resources from ground disturbance and antenna tower construction.
Recreation	Adverse mariner recreational impacts due to obsolete system.	No change from existing on-site conditions. Coverage gaps would not be completely eliminated;therefore unanswered calls for assistance would still occur.	No change from existing on-site conditions. Coverage gaps would not be completely eliminated;therefore unanswered calls for assistance would still occur.	Potential impacts would occur if antenna towers are located in recreational areas.
Visual Resources	No change from baseline conditions.	Increases in tower height would change visual aesthetics.	No change from baseline conditions.	Construction of antenna towers would change visual aesthetics. Potential for adverse impacts in visually sensitive areas.
Socioeconomic Resources	No change from baseline conditions.	Beneficial impact from financial investment for labor and equipment. Beneficial impact from improved public safety; however not all coverage gaps would be eliminated.	Beneficial impact from financial investment for labor and equipment. Beneficial impact from improved public safety; however not all coverage gaps would be eliminated.	Beneficial impact from financial investment for labor and equipment slightly greater than Alternative B or C. Beneficial impact from improved public safety. All coverage gaps would be eliminated.

Table 2-2 Comparison Summary of Environmental Effects

Resource	Alternative A No Action	Alternative B Modernize the NDRS by Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS	Alternative C Modernize the NDRS by Deploying New Communications Technology to a Leased Commercial Tower Site	Alternative D Modernize the NDRS by Deploying New Communications Technology to a New Undeveloped Site
Land Use	No change from baseline conditions.	No change from baseline conditions.	No change from baseline conditions.	Land use would change on undeveloped sites that are not located on USCG property. Potential for impacts to coastal zones including impacts to Coastal Zone Management Plans, Coastal Barrier Resource System units, prime or unique farmlands, and/or DOT Section 4(f) lands. Loss of open space, and possibly wetlands, could occur.
Environmental Justice	No change from baseline conditions.	Potential impacts dependent upon site-specific demographic characteristics. Raising the height of existing antenna towers may increase existing concerns with visual quality.	Potential impacts dependent upon site-specific demographic characteristics.	Potential impacts dependent upon site-specific demographic characteristics. Raising the height of existing antenna towers may increase existing concerns with visual quality. Potential impacts are greater than those for Alternative B or C.

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CHAPTER 3

AFFECTED ENVIRONMENT

CHAPTER 3

AFFECTED ENVIRONMENT

3.1 Introduction

This section presents the existing environment or baseline conditions for the biophysical resources that would potentially be affected by deployment of the NDRSMP. This section is organized by individual resources, and includes descriptions of both the biological and physical portions of the ecosystems potentially impacted. Because specific sites have not been chosen for modernization, this section provides a general description of the resources that comprise the existing environments in which the proposed action would occur. Information is presented in this chapter to the level of detail necessary to support the conclusions made in Chapter 4, Environmental Consequences.

3.2 Description of the Affected Environment

3.2.1 Noise

Noise is generally defined as unwanted sound and can be any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Responses to noise by living organisms vary depending on the type and characteristics of the noise, distance between the noise source and receptor, receptor sensitivity, and time of day. Major noise sources include automobile traffic, airports, industrial activities, and densely populated areas.

Sound pressure level (L_p) can vary over an extremely large range of amplitudes. The decibel (dB) is the accepted standard unit for measuring the amplitude of sound because it accounts for the large variations in amplitude and reflects the way people perceive changes in sound amplitude. Sound levels are easily measured, but the variability is subjective and physical response to sound complicates the analysis of its impact on people. People judge the relative magnitude of sound sensation by subjective terms such as "loudness" or "noisiness."

Different sounds have different frequency content. When describing sound and its effect on a human population, A-weighted (dBA) sound levels are typically used to account for the response of the human ear. The term "A-weighted" refers to a filtering of the noise signal, which emphasizes frequencies in the middle of the audible spectrum and de-emphasizes low and high frequencies in a manner corresponding to the way the human ear perceives sound. This filtering network has been established by the American National Standards Institute (ANSI 1983). The A-weighted noise level has been found to correlate well with people's judgments of the noisiness of different sounds and has been used for many years as a measure of community noise.

Typical noise sources at existing antenna sites include noise from limited human activity, noise from operation of the tower equipment, and noise from surface traffic from nearby roads. Noise sources at undeveloped sites located on USCG property would be due to increased human activity on the station. Undeveloped sites on Federal, State, or privately owned property, or existing sites located in rural areas, may or may not be near roads, residential areas, or other sources of noise. As such, noise levels at undeveloped sites would be dependent upon where the site is located. Therefore, noise levels at undeveloped sites would range from those expected in highly urbanized areas to those expected in rural areas, where virtually no human created noise exists.

3.2.2 Air Quality

3.2.2.1 Air Pollutants and Regulations

The United States Environmental Protection Agency (USEPA) has established primary and secondary National Ambient Air Quality Standards (NAAQS) under the provisions of the Clean Air Act (CAA). The CAA not only established the NAAQS, but also set emission limits for certain air pollutants from specific sources, set new source performance standards based on best demonstrated technologies, and established national emissions standards for hazardous air pollutants.

The USEPA classifies the air quality within an air quality control region (AQCR) according to whether the region meets or exceeds Federal primary and secondary NAAQS. Primary standards define levels of air quality necessary to protect public health with an adequate margin of safety. Secondary standards define levels of air quality necessary to protect public welfare (i.e., soils, vegetation, and wildlife) from any known or anticipated adverse effects of a pollutant. Federal NAAQS are currently established for six pollutants (known as "criteria pollutants"); including carbon monoxide (CO), nitrogen dioxide, ozone (O_3), sulfur oxides (SO_X commonly measured as sulfur dioxide), lead, and particulate matter equal to or less than 10 microns in aerodynamic diameter (PM_{10}). Although O_3 is considered a criteria pollutant, and is measurable in the atmosphere, it is not often considered as a pollutant when reporting emissions from specific sources. O_3 is not typically emitted directly from most emissions sources, but is formed in the atmosphere from its precursors, nitrogen oxides (NO_X) and volatile organic compounds (VOCs), which are directly emitted from various sources. Thus, NO_X and VOC are commonly reported instead of O_3. Table 3-1 summarizes the primary and secondary NAAQS.

3.2.2.2 Regional Air Quality Considerations

Key factors affecting air quality conditions for a location or region are pollutant emission rates, emission parameters, topographic features, chemical reactions, cumulative effects from other emission sources, and meteorological conditions (e.g, temperature, winds, precipitation, etc.).

An AQCR or portion of an AQCR may be classified as attainment, non-attainment, or unclassified for each of the six criteria pollutants. Attainment describes a condition in which one or more of the six NAAQS are being met in an area. The area is considered to be "attainment" only for those criteria pollutants for which the NAAQS are being met. Non-attainment describes a condition in which one or more of the six NAAQS are not being met in an area. Unclassified indicates that air quality in the area cannot be classified and is therefore treated as attainment. An area may have all three classifications for different criteria pollutants.

Table 3-1 National Ambient Air Quality Standards

Criteria Pollutant	Averaging Time	Primary NAAQS[a,b,c]	Secondary NAAQS[a,b,d]
Carbon Monoxide	8-hour 1-hour	9 ppm (10 mg/m^3) 35 ppm (40 mg/m^3)	No standard No standard
Lead	Quarterly	1.5 µg/m^3	1.5 µg/m^3
Nitrogen Dioxide	Annual	0.0543 ppm (100 µg/m^3)	0.0543 ppm (100 µg/m^3)
Ozone	1 hour[e]	0.12 ppm (235 µg/m^3)	0.12 ppm (235 µg/m^3)
PM_{10}	Annual 24-hour	50 µg/m^3 150 µg/m^3	50 µg/m^3 150 µg/m^3
Sulfur Oxides (measured as SO_2)	Annual 24-hour 3-hour	0.03 ppm (80 µg/m^3) 0.14 ppm (365 µg/m^3) No standard	No standard No standard 0.50 ppm (1,300 µg/m^3)

PM_{10} Particles with aerodynamic diameters less than or equal to a nominal 10 micrometers

[a] The 8-hour primary and secondary ambient air quality standards are met at a monitoring site when the average of the annual fourth-highest daily maximum 8-hour average ozone concentration is less than or equal to 0.08ppm.

[b] The NAAQS are based on standard temperature and pressure of 25 degrees Celsius and 760 millimeters of mercury.

[c] National Primary Standards: The levels of air quality necessary to protect the public health with an adequate margin of safety. Each state must attain the primary standards no later than three years after the State implementation plan is approved by the USEPA.

[d] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the State implementation plan is approved by the USEPA.

For non attainment areas, each state submits for approval a State Implementation Plan (SIP) that will bring the affected air basin into attainment with the NAAQS. Air emission regulations are more stringent in non attainment areas and vary from air basin to air basin.

Areas with very clean air are required to adhere to Prevention of Significant Deterioration (PSD) requirements concerning major new emission sources. Areas in which PSD requirements apply include Federal wilderness areas and other settings possessing pristine air quality.

Air quality is predominantly affected by stationary sources (e.g., urban and industrial developments) and mobile sources (e.g., automobiles). Consequently, increases in population and urbanization can result in negative impacts to air quality. In general, the urban environment is characterized by elevated levels of criteria pollutants, which can potentially reach unhealthy levels. Rural environments, on the contrary, are typically characterized by good air quality due to the lack of pollution emitting sources. However, due to the migratory nature of air pollutants, emissions from urban areas can have a negative impact on the air quality of a rural area.

The CEQ annually summarizes the nation's air quality. Data from the annual reports are gathered by the USEPA from national, State, and local air-quality monitoring sites, typically located in urban or industrial areas. Data for specifically designated air basins within the U.S. are also available. Data on air quality standards and air basin conditions are available from State and regional air pollution control agencies and air quality management district offices. Whether a proposed location is in compliance with rules and regulations for a particular air basin is determined on a site-by-site basis. Areas in attainment and not subject to PSD requirements are not expected to require site-specific air quality general conformity analysis, as individual emissions will be well below the pollutant thresholds set forth in 40 CFR 93.153(b)(1) and will be well below 10 percent of an area's total emissions for each pollutant.

3.2.3 Earth Resources

Earth resources of an area consist of geological resources and topography. Geological resources are a combination of soil and rock, which refer to unconsolidated and consolidated material, respectively, regardless of depth below ground surface. The characteristics of geological resources present at a site vary depending on geographic location. For example, the geology along the Gulf of Mexico and up the Eastern Seaboard of the U.S. is generally characterized by a flat coastal plain with sand and clay soil at the surface. However, from northern California to Alaska the coastline is dominated by igneous rock exposed at the surface that has been eroded into craggy cliffs. The geology present at a site greatly influences the type and extent of construction activity necessary to establish a new antenna site.

Topography refers to the change in vertical elevation of the earth's surface across a given area. Like geology, topography varies dramatically depending on geographical location. Generally, topography along coastal areas is fairly level. Even though the coastline may be dominated by cliffs, the cliff tops themselves are relatively flat. The height of the antenna influences its effective range; therefore, hills, cliffs or other naturally elevated areas along coastlines provide attractive antenna sites.

A typical existing antenna site has been graded and leveled, the ground surface covered with gravel to provide easier access during inclement weather, and includes an access road. Earth resources at an undeveloped site vary based on specific location. An undeveloped site located on an active USCG station may have an access road nearby, and may have been disturbed previously. Undeveloped sites on other Federal, State, or privately owned land may or may not have some existing access roads in the vicinity but the majority of the land area would not currently be disturbed or used.

3.2.4 Water Resources

Water resources (water quality and quantity) are protected and regulated by Federal statutes and Executive Orders (EOs), as well as State and local regulations and directives. Surface, ground, and coastal waters are protected from pollution originating from point sources such as sewage treatment plant discharge, and non-point sources such as runoff from urban paved areas, mines, and cattle farms. Many statutes control activities that indirectly impact water quality, such as EOs 11990 and 11988 on Floodplain and Wetlands Protection, respectively.

Water resources include surface water and groundwater environments. Surface water and groundwater resources are often used for potable water consumption, recreational activities, and are vital to agriculture. A wide variety of aquatic and terrestrial wildlife species rely on water resources for their habitat, nesting and migratory activities. General concerns with regard to surface and groundwater resources are pollution and overuse.

Surface water resources, except for wetlands and floodplains, are not likely to be present on existing antenna tower sites due to site size and grade characteristics (graded so that surface water from rain events flows off the site). However, surface water in the form of lakes, rivers, streams, and ponds may be located adjacent to existing antenna tower sites. Undeveloped sites may be located in or within proximity to surface water features such as wetlands and floodplains.

Groundwater resources consist of subsurface hydrologic resources of the physical environment. Groundwater resources are likely to be present beneath both existing antenna tower sites and undeveloped sites. Depths to groundwater would vary depending upon location.

3.2.5 Infrastructure and Utilities

The presence or absence of required infrastructure and utilities is an important consideration in selecting sites for reconstruction or new construction. Having to construct, initiate, or contract such work to support site operations can greatly impact estimated costs, both short- and long-term. With regard to utilities, sites would generally fall into one of two categories: those located in a developed setting (e.g., urban areas, developed suburban areas) and those located in an undeveloped setting (e.g., rural and/or remote settings). In general, sites in developed settings would be more likely to have accessible utilities, and utilities in undeveloped settings may be nonexistent or located far from the project site.

3.2.5.1 Utilities Availability

The availability of utilities (water, gas, fuel, telephone, cable, electric services, etc.) would vary from site to site, depending on the proximity of the subject site to existing municipal, county, or private service lines. Sites located in developed areas are likely to have proximate service lines that can be easily utilized, while sites located in undeveloped areas may not have access to such services. Electricity and communication (telephone/fiber optic) utilities are the only utilities required for operation of the tower sites; these service lines are currently in place at existing sites. Leased sites would involve leasing space on an existing antenna; existing utilities would be utilized for the operation of the new equipment. For the purposes of this analysis, it is assumed that potential sites are located within 2 miles of electrical/communication service.

3.2.5.2 Solid Waste Management

Solid waste management services (usually involving collection and disposal of solid wastes) are available in nearly all developed areas within the continental U.S.; however, collection services may not be available in remote locations. Collection services typically pick up waste and transport it to a disposal facility that may or may not be owned by the collection service company. Waste must be collected and disposed of by companies and/or facilities that are permitted (by the Federal or State Environmental Protection Agency with jurisdiction over the site) to handle or dispose of that particular type of waste. Various categories of waste include municipal (e.g., household trash), construction/demolition debris (e.g., wood, bricks, asphalt, etc.), industrial wastes (e.g., manufacturing by-products), and hazardous wastes (e.g., household chemicals, paint, industrial chemicals, etc.). Normal operation of an antenna tower site does not require solid waste collection and disposal services; however, it is probable that some amount of waste would be generated during demolition or construction activities that may be required at a given site.

3.2.5.3 Drainage

The stormwater drainage characteristics of a given site are highly location-specific and may not necessarily vary by their association with developed or undeveloped surroundings or be dependent on the type of improvements required at the site. Storm water drainage patterns and requirements are affected by the amount of rainfall received in a certain geographic location, the topographic position of the site (e.g., hilltop, basin, etc.) within a given watershed, the proximity of water bodies or drainage ways, and the ability of nearby drainage ways to accept additional runoff. For example, a site that is on a hilltop would have fewer drainage concerns than a site that is located in a basin. Likewise, a site that is located in a wet climate would have more drainage requirements than a similarly positioned site in an arid environment.

3.2.5.4 Transportation and Access

Existing and potential sites can be located in any type of area: urban, suburban, or rural. The transportation facilities that serve these different types of locations can vary widely. Urban areas are characterized by a complex and extensive system of roads, including major interstate freeways and major surface streets. Urban roads typically support high levels of traffic which often result in roadway segment and intersection congestion. Rural environments can be characterized by few or no roads, which translates to a less complex transportation network. In addition, unpaved roads often occur in rural environments. Generally, traffic levels on rural roads are relatively low (i.e., little or no congestion). Since NDRSMP sites are not continually occupied and operation/maintenance-related visits are infrequent and involve a small number of people, vehicular traffic into and out of any existing site associated with this project would be minimal. Minimal traffic would also be expected at potential unused or undeveloped sites.

3.2.6 Hazardous Substances

3.2.6.1 Hazardous Substances and Wastes

Hazardous substances are defined as any solid, liquid contained gaseous or semisolid waste, or any combination of wastes which pose a substantial present or potential hazard to human health and the environment. Hazardous substances are primarily generated by industry, hospitals, research facilities, and the government. Improper management and disposal of hazardous substances can lead to pollution of groundwater or other drinking water supplies, and the contamination of surface water and soil. The primary Federal regulations for the management and disposal of hazardous substances are the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA).

Hazardous substances specific to this project include batteries, waste fuel and oil, and obsolete or broken system components (e.g., computer parts and solar panels). These hazardous substances would only be generated during dismantling or construction of the tower and its components. The USCG would handle (i.e., contain, store, transport, and dispose) all hazardous materials and wastes in accordance with applicable State and Federal regulations (e.g., RCRA). At the current existing and leased sites, the only baseline hazardous substance is fuel, generally diesel or gasoline, stored in a 40 to 60-gallon above ground fuel tank on the generator with no separate tanks. At the undeveloped sites, it is assumed that no hazardous substances are present.

Over the life of an antenna site, maintenance is an ongoing process. The process of performing routine maintenance and upkeep on a site (i.e., repairing and replacing system components) so that operational and mission requirements are met, is defined as the life cycle of the site. Routine maintenance would normally include servicing, cleaning or repairing the electronic equipment contained in the site shelter or mounted on the tower itself. Materials and chemicals commercially available for use in electronic maintenance are not considered hazardous materials. However, routine maintenance on a backup generator (i.e., changing the engine oil) would generate a regulated waste that must be

properly managed. Additionally, any maintenance to the tower structure or site shelter (i.e., painting) could involve regulated materials that should be properly managed.

3.2.6.2 Radio Frequency Radiation

Radio frequency (RF) radiation (i.e. radio waves) can be defined as electromagnetic waves (generated by the oscillation of a charged particle) with a wave frequency (the number of sound waves per unit time) in the RF range, which is usually between 10 kilohertz (kHz) and 300,000 megahertz (MHz) (Morris 1992). Radio waves are radiated by antennas utilized for several applications, including cellular communications, radio broadcasts, and two-way radio communications. Antennas are usually located atop hills, towers, rooftops, and other elevated structures which enhance operating range. At the existing NDRS sites, antennas currently in place emit radio waves at a frequency ranging from 156 to 162 MHz with a broadcast power of 50 watts. For comparison purposes, a handheld cellular phone broadcasts at 0.6 watt at a frequency of 824 to 849 MHz; a citizen band (CB) radio broadcasts at 4 watts on frequencies from 26.96 to 27.41 MHz; and a large urban FM radio station may broadcast at up to 50,000 watts on frequencies ranging from 88 to 108 MHz (Brain 2002).Although RF radiation does not present as great a health hazard as "ionizing" radiation sources (which can cause molecular changes that may result in significant genetic damage) such as x-rays and gamma rays, high intensities of RF radiation can be harmful. Similar to microwaves, RF radiation has the ability to heat biological tissue rapidly, resulting in tissue damage, which is known as a "thermal" effect. The extent of this heating depends on several factors, the most limiting of which is radiation frequency. Others include the size, shape, and orientation of the exposed object; duration of exposure; environmental conditions; and efficiency of heat dissipation (FCC 1999). At relatively low levels of exposure to RF radiation, the evidence for resulting harmful biological effects is unproven (FCC 1999).

Due to large populations and the numerous communication sources (e.g., radio stations, cellular telephones, citizen band radios) present in urban areas, radio waves are very common in areas where the majority of USCG-owned and commercial antenna sites currently exist. Due to relatively small populations and fewer emitting sources, radio waves are generally less common in rural areas and areas where undeveloped sites may be selected for new towers.

3.2.7 Biological Resources

Protection of the biological environment is provided by a host of Federal and State laws, regulations, and programs. Proposed activities must comply with regulatory criteria specific to the area of the improved or newly installed facility. A summary of applicable Federal regulatory criteria is included below (Section 3.2.7.1). State regulatory criteria would be considered during site-specific tiered analysis.

The types of biological resources that could potentially be impacted by the proposed action would vary depending upon the specific site location. The following discussion (Sections 3.2.7.2-3.2.7.5) briefly summarizes five categories of biological resources that

could potentially be affected: wildlife (with emphasis on migratory birds), vegetation, threatened and endangered species, wetlands, and floodplains.

3.2.7.1 Review of Regulatory Programs Affecting Biological Resources

Fish and Wildlife Conservation Act of 1980. This Act requires that Federally sponsored projects coordinate with State-authorized biological conservation plans and programs. Each state has the ability to establish a biological resources protection program and Federally sponsored projects must comply with provisions of those programs. Therefore, potential project impacts to resources protected under State programs would need to be reviewed on a state-by-state basis.

Fish and Wildlife Coordination Act of 1934. This Act provides that, whenever the waters or channel of a body of water are modified by a Federal agency, that agency shall consult with the United States Fish and Wildlife Service (USFWS) and State agencies to conserve wildlife resources.

Migratory Bird Treaty Act of 1918. This Act initially protected birds more commonly considered migratory game. It now is construed as inclusive of almost all birds that have the ability to seasonally relocate within various parts of the U.S. Adverse effects on individuals and populations of migratory birds must be considered for each proposed improvement based on bird migratory patterns within the vicinity of the improvement.

National Wildlife Refuge System Improvement Act of 1997. Activities related to the proposed NDRS improvements, which may affect a National Wildlife Refuge, must comply with provisions of this Act. These refuges are frequently located near the coast and are often associated with seasonal occurrences of migratory birds. Activities that may affect biological resources within a refuge must comply with a Special Use Permit based on a compatibility determination from the U.S. Fish and Wildlife Service.

Endangered Species Act of 1973. This Act protects populations and habitats of animal and plant species listed by the U.S. Fish and Wildlife Service (USFWS). Project components that have a potential to affect any of these listed species must be evaluated fully to identify the magnitude of those effects as well as identifying means of avoiding those effects. Where these possible effects cannot be entirely eliminated they need to be minimized and mitigated appropriately. Requirements for this are found in Section 7 of this Act and coordination with the USFWS and/or National Marine Fisheries Service (NMFS) would be necessary to exclude the possibility that adverse effects to any listed species might occur.

Marine Mammal Protection Act of 1972. This Act protects marine mammals, which are managed by the USFWS and NMFS. Similar to the ESA, any Federal project which could potentially affect marine mammals must be evaluated to identify the potential effect and means of avoidance or mitigation. Because USCG facilities are water-dependent, the proposed action has the potential to affect marine mammals.

Clean Water Act (CWA) of 1977. There are three major sections of this Act which may affect specific aspects of the NDRSMP, especially new facility installation. Sections 402 and 404 of this Act require protection of surface water resources and the integrity of biological resources dependent on aquatic habitats. Section 401 of this Act also allows each state to review permits issued under Sections 402 and 404 for compliance with State water quality provisions.

Section 404. Dredge and Fill Permits for Activities in Waters of the United States including Wetlands. Construction activities along the coastal fringe of the U.S. and along the large, inland lakes have a chance of adversely affecting resources protected under this section of the CWA. Activities affecting wetlands and other Special Aquatic Sites subject to Section 404 require permits issued by the U.S. Army Corps of Engineers (USACE). Permits for fill activities in waters of the U.S. must also comply with other State and Federal regulations. This includes State programs established under Section 401 of the CWA. There are several Nationwide Permits (NWP) for activities in waters of the U.S. that may cover specific aspects of the development of the proposed facilities. For example, NWP 3 (Maintenance) could apply to activities related to the repair, rehabilitation, or replacement of an existing tower; NWP 12 (Utility Line Activities) or 12 (Linear Transportation Projects) could apply to the construction of access roads for new tower sites; NWP 18 (Minor Discharges) or 19 (Minor Dredging) could apply to many sites where wetland impacts are minimal. The NWP program has numerous guidelines and conditions that must be met for the activity to use the permit. NWPs are subject to review by the states under Section 401 of the CWA, as are all aspects of the USACE permitting program.

Section 402. Although this section of the CWA is directed more toward protection of surface water resources, recent provisions have broadened the scope to include more direct protection of aquatic biological resources resulting from stormwater run-off from various land development activities. This requirement will affect construction of new facilities more than improvements to existing facilities.

Section 401. Each state has an opportunity to establish specific criteria for water quality protection under this section of this Act. These provisions must be satisfied prior to issuance of permits under Sections 402 and 404 of the Clean Water Act.

Rivers and Harbors Act of 1899. This Act prohibits the creation of any obstruction to the navigable capacity of any of the waters of the United States without specific approval of the Chief Engineer of the USACE under a Section 10 permit. Permits issued under Section 10 of this Act are also required along with permits issued under Section 404 of the Clean Water Act when the affected wetlands are defined as navigable.

Department of Transportation Act of 1966, Section 4(f). This Act requires that any use of public lands (including public parks, recreation areas, waterfowl and wildlife refuges) by a DOT agency, must demonstrate that there are no feasible and prudent alternatives to the use of such land, and that the program or project includes all possible planning to minimize harm to such land resources.

Executive Order (EO) 11990 (Protection of Wetlands). This order, issued in 1977, requires that all federally sponsored projects affecting wetlands demonstrate that there are no practicable alternatives to such construction, and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use. This EO therefore requires additional review in those instances where a proposed NDRS facility would affect wetlands. Wetlands that must be considered under this EO are more inclusive than those subject to the CWA and may include isolated wetlands not associated with waters of the U.S.

EO 11988 (Floodplain Management). This order, issued in 1977, seeks to avoid the long- and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. EO 11988 applies to Federally funded projects and directs agencies to consider alternatives to siting in a floodplain.

EO 13186 (Protection of Migratory Birds). This order, issued in 2001, requires each Federal agency to develop and implement a Memorandum of Understanding (MOU) with the U.S. Fish and Wildlife Service concerning the protection of migratory birds. This memorandum, when prepared by the USCG, will address issues related to collisions between migratory birds and radio antennas and the effects of various types of antenna lighting on the behavior of migratory birds. Efforts are underway by the USCG to complete this MOU.

States also have biological resource protection regulations and guidelines which must be considered as required by the Fish and Wildlife Coordination Act. This will include review typically of protected non-game species, wetlands and other valued natural habitats, as well as water resources and the biologic resources associated with them. Many state's lists of protected non-game species overlap with those listed under the federal Endangered Species Act. However, species lists developed by the States frequently are more inclusive.

The regulatory environment is thus an important consideration in reviewing the potential adverse impacts of the proposed NDRS improvements. The applicability of these regulations would change among different facility locations based on site specific circumstances, State and local government programs, by proximity to biological resource areas within each state, and by land-ownership.

Developing an accurate portrayal of the regulatory environment affecting each NDRS facility would therefore be essential in evaluating requirements for biological resource protection. All of the proposed improvements and new facilities are located near maritime and coastal environments. Coastal areas are typically biologically important for wildlife and plant communities. An accurate assessment of these resources would require site specific reviews and a full understanding of the local regulatory environment.

3.2.7.2 Wildlife

Wildlife species and their habitats potentially affected by the NDRSMP would vary tremendously depending on location. In general, however, it can be assumed that undeveloped sites would offer more habitat, although many species adapt successfully to human-altered environments.

All native migratory birds (waterfowl, shorebirds, songbirds, hawks, owls, vultures, and falcons) are protected by the Migratory Bird Treaty Act. Bird concentration areas include: traditional migratory flight corridors (ridges, shorelines, river valleys); rookeries and other bird breeding areas; stopover, staging, or resting areas (land bounding large bodies of water, wetlands, forests, and natural grasslands; wildlife preserves; and seasonal flight paths (between feeding and nesting or roosting areas).

Because the proposed action involves structures that protrude possibly hundreds of feet into the sky, the effect of the towers on migratory birds is the principal biological concern. Migratory birds are potentially impacted by physical loss due to striking antennas and towers found at NDRS facilities, as well as by changes in migration patterns due to lighting (normally required by the Federal Aviation Administration on towers more than 200 feet in overall height). In the case of new facilities, some loss or fragmentation of habitat for migratory birds may also occur. NDRS facilities are typically located in coastal areas and along large rivers and water bodies – areas typically associated with migratory bird flyways and with concentrations of maritime birds.

3.2.7.3 Vegetation

Plant communities associated with coastal fringe and maritime environments are often considered biologically important due not only to the plants within these habitats but also as providing wildlife habitats, and in stabilizing sand dunes and other coastal land forms frequently subjected to severe weather events. Vegetation communities may also be important in maintaining water quality of coastal and inland waters.

Several plant communities are unique to the coastal and inland waterways including; sand dune, rocky intertidal, coastal bluffs (including lake and riverine shorelines) and tidal wetlands. The plant community present on sand dunes (sea oats, American beach grass, sand cordgrass, etc.) is unique to that habitat due to low soil nutrient levels and high water permeability. Rocky intertidal communities exhibit widely fluctuating salinity concentration coupled with high wave energy, resulting in specialized plant species such as *Enteromorpha* sp., *Fucus* sp. and various other attached green and brown algae. Because of eroding sediments, the plant community of coastal bluffs is often dominated by ruderal species adapted to rapid germination and growth rates. The plant communities of tidal wetlands have adapted to fluctuating water levels, wave action, and standing water. The plant communities of coastal and inland waterways provide numerous purposes including the accretion of wind blown sediments, sediment stabilization, protection from storm activity, nursery habitat for aquatic and water dependant fauna, assimilate nutrients in surface waters and filter storm generated runoff of pollutants and suspended solids.

3.2.7.4 Threatened and Endangered Species

Activities by humans, such as developments that destroy habitat or discharge of contaminants, have resulted in the disappearance of hundreds and thousands of species. Regulatory programs that attempt to prevent extinction of threatened and endangered (T&E) species are discussed in Section 3.2.7.1. T&E species are potentially very broadly distributed throughout those areas potentially affected by the proposed activities.

Inherent in the unique plant communities of coastal and inland waterways is the faunal species they support. Several protected animals are known to associate with coastal and inland habitats including beach mice, Bald Eagle, shorebirds, numerous species of mollusks, gastropods and fish, and other invertebrates. Many coastal and inland waterway habitats are relatively small and often support correspondingly small faunal populations. As a result, faunal population size is directly affected by the decreasing size and number of these unique plant communities.

3.2.7.5 Wetlands

Coastal and maritime environments are usually composed of various types of landscape features including either wetlands or other forms of important aquatic environments. As discussed in Section 3.2.7.1, impacts to wetlands would require review based on several regulatory programs.

Coastal and inland waterway wetland habitats are provided Federal protection due to their importance to local and regional ecology. Due to the restrictions imposed by site hydrology, these wetlands are often dominated by a single plant species (eg. *Spartina* marshes of the entire fringing coastal United States, cypress riverine swamps of the southeast and southern United States, mangrove swamps of the estuarine subtropical United States). In the estuarine coastal environment, differing salinity regimes affect plant composition, which in turn, affects faunal utilization. Examples include low-salinity or oligohaline marshes, where the salinity ranges between 0.5 and 5.0 parts per thousand. The plant community present in this area has adapted to this salinity regime, and correspondingly, the faunal community found in oligohaline marshes is often associated only with this plant community.

Coastal and inland waterway wetland habitats provide important functions to local and regional ecology. These wetlands assimilate nutrients in surrounding surface waters, they remove suspended solids and pollutants from stormwater and they protect shorelines from wind and wave action and storm-generated forces.

3.2.7.6 Floodplains

Coastal and maritime environments are also usually include floodplain areas. As discussed in Section 3.2.7.1, impacts to floodplains would require review based on several regulatory programs.

Most floodplains are adjacent to streams, lakes, or oceans, although almost any area can flood under the right conditions. Beaches and small river valleys are usually easily recognizable as floodplains, but less obvious floodplains occur in dry washes and on alluvial fans in arid parts of the western U.S., around prairie potholes, in areas subject to high groundwater levels, and in low lying areas where water may accumulate. Sheet flooding and ponding occurs in areas where there is no clearly defined channel and the path of flooding in unpredictable.

3.2.8 Cultural Resources

Consideration of effects to cultural resources is mandated by NEPA and by two other Federal laws: Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA, 16 U.S.C. 470-470w-6), and by Section 4(f) of the Department of Transportation Act of 1966 (49 U.S.C. 303 and 23 U.S.C. 138).

Section 106 requires Federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on such undertakings. The procedures for implementing Section 106 are contained in 36 CFR Part 800, *Protection of Historic Properties*. Section 4(f) of the Department of Transportation Act mandates that the Secretary of Transportation shall not approve any program or project that requires the use of land from a historic site unless two conditions have been met: there is no feasible and prudent alternative to the use of such land, and such program includes all possible planning to minimize harm resulting from the use of a historic site.

While Section 4(f) applies only to the actions of the U.S. DOT, the requirements of the Section 106 regulations apply to all Federal undertakings. In the case of Section 106, a set of implementing regulations, 36 CFR Part 800, govern the way that Federal agencies carry out their compliance with Section 106 of NHPA. These regulations define a Federal undertaking as an action that is proposed by a Federal agency (or a project proposed by others that will receive funding, permits, licenses, or authorizations from Federal agencies) that has the potential to affect historic properties. Historic properties are defined as properties that are either listed in or eligible for listing in the National Register of Historic Places (NRHP). The regulations implementing the NRHP may be found in 36 CFR 60.4.

As defined in 36 CFR § 800.16(d), the area of potential effects, or APE, "is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking." APEs may vary widely depending upon the scale of the undertaking but also upon the type of cultural resource. For example, when considering effects to archaeological resources, the APE is often established according to the "footprint" of the proposed action because this is where disturbance of the soil will occur. When defining the APE for historic buildings and structures, however, the boundary will often extend beyond the footprint so that indirect impacts including visual, audible, and atmospheric effects may be considered. Because

NEPA and NHPA use different terminology, the APE for an undertaking as determined through Section 106 of the NHPA may be different from the area studied within the environmental assessment for impacts to other kinds of resources.

Upon delineation of the APE for the undertaking, the Federal agency is responsible for identifying and evaluating any historic properties that may be present within the APE. Historic properties may be buildings, structures, historic districts, objects, sites, or archaeological resources. In addition to being associated with themes important to history at the national, State, or local level, historic properties may also have religious or cultural significance and qualify for NRHP eligibility as Traditional Cultural Properties (TCPs).

Pursuant to 36 CFR § 800.5.1, "Assessment of adverse effects,"

> An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the NRHP. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

As described in 36 CFR § 800.5(2), "Examples of adverse effects," adverse effects on historic properties include, but are not limited to:

> (i) Physical destruction of or damage to all or part of the property;
>
> (ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's standards for the treatment of historic properties (36 CFR Part 68) and applicable guidelines;
>
> (iii) Removal of the property from its historic location;
>
> (iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
>
> (v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;
>
> (vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

When a Federal agency determines that its undertaking would result in an adverse effect, 36 CFR § 800.6 requires that the agency consult with the State Historic Preservation Officer (SHPO)/Tribal Historic Preservation Officer (THPO), interested persons, the ACHP, its applicant, local governments, Indian Tribes and Native Hawaiians, the public, and possibly others to seek ways to avoid, minimize, or mitigate the undertaking's adverse effect. If avoiding the adverse effect through re-design or other alternative means is not possible, the Federal agency, the SHPO/THPO, the ACHP, and other consulting parties may enter into a Memorandum of Agreement (MOA) that outlines appropriate measures that the Federal agency would employ to mitigate the adverse effect of the undertaking. In cases where the Federal agency and the other consulting parties fail to agree on what would be appropriate mitigation measures, the Federal agency or the other consulting parties may terminate consultation, in which case the ACHP issues a final opinion and the project proceeds.

Because Section 106 of NHPA requires Federal agencies to consider properties that may be eligible for listing in the NRHP as well as properties formally listed in the NRHP, the effects of specific components of the proposed NDRSMP to historic properties would need to be determined in consultation with the appropriate State SHPO/THPO. Prior to determining the effects of the proposed undertaking, it would also be necessary to determine if other previously unidentified historic properties including archaeological sites may exist at each of the proposed NDRSMP sites. Conversely, the effort to identify and evaluate historic properties may result in a finding of no historic properties present (36 CFR § 800.4(d)(1)). In this case, the USCG would document this finding and the Section 106 process is then complete.

As part of its effort to comply with Section 106, the USCG has already initiated preliminary discussions with the appropriate SHPOs or THPOs about the potential effects of the proposed NDRSMP to historic properties through the NEPA scoping process. Several of the SHPOs and a THPO have indicated that they believe the proposed action has the potential to affect historic properties and that the USCG would need to submit clear project documentation including a description of the undertaking, the location of each newly constructed modernization project in the State, the USCG's delineation of the APE for each newly constructed modernization project in the State, and what efforts the USCG had made to determine if historic properties may be present within the APE for each NDRSMP site. No SHPO or THPO has stated that it believed that the proposed modernization projects would have no effect on historic properties.

Because the proposed NDRSMP has been determined by the USCG to be an undertaking with the potential to affect historic properties, it would be necessary for the USCG to consult with the appropriate SHPO or THPO to determine what the APE for each newly constructed modernization site would be and if any properties within the APE for each site meet the eligibility criteria for the NRHP. Furthermore, a determination of the proposed project's effects to historic properties, if any, would need to be undertaken in

consultation with the appropriate SHPO or THPO. Finally, in the event that any of the proposed NDRSMP sites are determined to have an adverse effect to historic properties, the USCG would also need to seek ways to avoid, minimize, or mitigate the adverse effect in consultation with the appropriate SHPO or THPO.

In terms of applying Section 106 compliance to NEPA, the two laws parallel each other. For example, both laws are primarily concerned with assessing the consequences of actions. At the same time, the finding that a Federal action would have negative consequences under one law does not necessarily lead to the same finding under the other law. The Section 106 regulations compel a Federal agency to determine if its undertaking would result in an *adverse effect to historic properties*; NEPA requires these agencies to decide if a proposed action would have a *significant impact to the human environment.* Furthermore, an adverse effect finding under Section 106 does not necessarily lead to a determination of significant impact under NEPA compliance. Nevertheless, under certain circumstances, a finding of Section 106 adverse effects can influence the decision that a significant environmental impact would occur.

In the case of sites that the USCG proposes new construction of the NDRS facilities, Section 4(f) may apply if these locations contain NRHP-listed or eligible properties, including both historic buildings and archaeological sites. In terms of NEPA compliance and the assessment of the project's environmental impact, the environmental impact of a project is ordinarily considered significant if the project requires the use of Section 4(f) land from an historic site.

Because it is not known precisely where the USCG would place each of the improvements for the proposed NDRS modernization, it is not yet known if a "use" of land from historic property as defined by Section 4(f) of the DOT Act would be necessary. However, following completion of the identification and evaluation step of Section 106 NHPA compliance, the USCG would determine if Section 4(f) applies to any of the proposed NDRSMP project sites.

3.2.8.1 Archaeological Resources

Archaeological resources include areas where prehistoric or historic peoples left behind physical evidence of their presence and activities; this evidence may include features such as pits or structural foundations, artifact deposits, or graves. Prehistoric archaeological resources are generally found in proximity to sources of fresh water and natural resources. Where fresh water is found adjacent to productive marine, riverine, and lacustrine habitats there is increased likelihood for the presence of prehistoric archeological resources. Thus prehistoric archaeological sites are quite common in the types of settings that the NDRS would be deployed. Historic people were likewise attracted to water and natural resources, and historic era archaeological sites can also be quite common in these settings.

Archaeological resources at existing antenna tower sites either currently in use by the USCG or commercial, contractor-owned sites not currently utilized by the USCG are

expected to have compromised integrity resulting from ground disturbance during the initial construction and development of the facility.

New NDRS sites deployed on undeveloped parcels, because of their proximity to coastal marine environments and major inland waterways, have a high likelihood of containing archaeological resources. Terrestrial environments adjacent to lacustrine, riverine and estuarine natural environments were attractive locations for prehistoric settlement and have a high likelihood of archeological sites. In an urban environment, there is an increased likelihood of historic archaeological sites. Prehistoric archaeological sites can occur in urban environments but the increased level of development can affect the integrity of archaeological resources. There is an increased likelihood of undisturbed archaeological resources in rural environments. In marine environments prehistoric archaeological sites are more common in low-energy environments, characterized by highly productive indented coastlines, than in high-energy environments, which are characterized by straight coastlines and lower natural productivity.

The potential for or presence of archaeological sites at individual proposed antenna tower sites would be determined through research and fieldwork, if warranted. Research would primarily consist of consulting known site files at the appropriate SHPO. Fieldwork may include a walkover site visit, hand excavation of sub-surface test pits, or mechanical excavation of deep tests.

3.2.8.2 Historic Resources

Because the exact location of the proposed NDRS modernization improvements is unknown, it is uncertain what historic resources may be present within the affected environment. However, it is highly likely that historic resources including historic buildings, structures, sites, districts, and objects may be present within the affected environment of USCG facilities that would ultimately be considered to host components of the proposed NDRSMP. Furthermore, historic resources may be present on the property that (1) the USCG proposes to lease that is not already under its management, (2) may later be under its management through the proposed activities related to the NDRSMP, or (3) on property that the USCG currently owns.

For example, many USCG stations contain buildings and structures that are 50 years of age or older and represent the evolving role of the agency. The USCG traces its roots to 1790 with the establishment of the U.S. Cutter Service, which merged with the U.S. Life Saving Service in 1915 when the two agencies were named the U.S. Coast Guard. Of the two predecessor agencies, the USLSS had a larger role in constructing the buildings that would eventually serve as USCG Stations in many communities. The USLSS was established in 1871, but the beginning of the Federal government's role in lifesaving efforts dates to 1831 when the U.S. Revenue Cutter Service began to provide aid to mariners whose ships were sinking or had run aground.

In 1939, the USCG absorbed the U.S. Lighthouse Service and took over the responsibility of maintaining the many lighthouses that were constructed along the U.S. coastline. Also in the 1930s, the agency began to replace the 19th century buildings with newer structures.

Following technological advancements such as gasoline and diesel-powered motorized launches and the advent of radio, the USCG removed the obsolete observation towers and boat ramps that the lifesaving crews had used. In their place, the USCG built lighter towers to support radio antennae and dug large basins to shelter their vessels, which had become larger and required hoists to lift them from the water. Given such changes to the role of the USCG, the stations themselves have greatly evolved and symbolize the many transitions and roles that the USCG has experienced during its history.

Beyond the boundaries of existing USCG-owned or leased facilities, the potential exists that other buildings and structures eligible for listing in the NRHP may be present within the APE of the proposed modernization project. For example, many existing USCG facilities are located in coastal areas, which are also the location of the initial or early settlement of individual communities. As such, these areas may contain buildings, structures, and even entire collections of buildings and structures known as historic districts that would qualify for listing in the NRHP but have not been previously evaluated for their NRHP eligibility.

Historic districts often contain residential or retail buildings that are commonly listed in the NRHP. However, the USCG recognizes that historic districts may also contain industrial resources that would be eligible for NRHP listing including sawmills, canneries, piers, wharves, dry docks, power plants, water treatment plants, cranes, bridges, culverts, canals, dikes, seawalls, jetties, and other structures. While visual sensitivity may not be as serious an issue with assessing the impact of the proposed radio antennas on these historic industrial resources, the USCG would make such an assessment.

3.2.9 Recreation

The types of recreation resources that could potentially be impacted by the proposed action would vary depending upon the specific site location. The following discussion provides a general summary of the types of recreational resources that might be present at or near proposed NDRSMP sites.

Recreation areas are both publicly and privately owned lands. Public lands are lands owned by the Federal, State, or local governments. Examples include Federal, State, and local "parks", as well as State or Federal seashores, scenic highways, and natural areas. Privately owned land could include lands primarily used for hunting or fishing as well as golf courses and even theme parks and water parks.

3.2.9.1 Terrestrial Recreation Resources

Terrestrial recreation resources in rural and urban environments differ. Recreational resources in urban environments are generally well-defined areas that include athletic fields, green belts, jogging trails, small nature preserves, tennis courts, and golf courses.

In rural areas where the population is less dense, recreational areas are not as well defined. Types of activities conducted in these areas are more varied and could include

hunting on public and private lands, camping, picnicking, hiking and backpacking, rock and mountain climbing, nature viewing, hunting, horseback riding, biking, four-wheel vehicle driving, and ecotourism including bird watching.

Although not typically considered as a recreation resource, rural airports used primarily for pleasure or "weekend" flying could also be a recreation resource that might be uniquely affected by tall communications towers.

3.2.9.2 Marine Recreation Resources

The availability of water resources for recreational use is impacted by the geography of an area rather than population density. Consequently, there is little difference between the types of water-based recreation activities that may be available in urban and rural areas. Examples of recreational activities typically conducted in a marine environment include swimming, boating, fishing, canoeing, water skiing, and boat and personal watercraft racing.

3.2.10 Visual Resources

Visual resources are defined as the natural and man-made features that give a particular setting or area its aesthetic qualities. These features define the landscape character of an area and form the overall impression that an observer receives of that area. Evaluating the aesthetic qualities of an area is a subjective process because the value an observer places on specific landscape features varies depending upon the perspective of the observer. For example, an architect may appreciate the contribution a manmade structure provides to the character of a landscape more than a biologist. Regardless of the subjective nature of assessing visual aesthetics; landforms, water surfaces, vegetation, and man-made features can generally be considered characteristic of an area if they are inherent to the composition and function of the landscape. The landscape character is studied when assessing the environmental impacts of a proposed action to determine whether a new feature would be incompatible with the affected setting and diminish the overall aesthetic quality of the area.

Although this environmental assessment does not identify specific project locations, a general description of the visual resources that might be expected in the existing environments in which the NDRSMP would occur is provided below. Sites that would be selected for deployment of the NDRSMP are expected to be located along coastal areas and all major inland bays and waterways. Therefore, the description of visual resources in the affected environment has been separated into two major categories, terrestrial and marine.

3.2.10.1 Terrestrial Environment Visual Resources

The visual resources of a terrestrial environment include both natural and man-made features. The extent to which man-made features are the dominant visual resource depends upon whether the terrestrial environment is in a rural or urban setting. In a rural setting the visual aesthetics are dominated by natural appearing landforms and vegetation.

Examples of natural visual resources that may occur in a terrestrial rural environment include mountains, undulating land, valleys, cliffs, beaches, and natural vegetation. Although natural visual resources will dominate rural areas, some signs of human activity are likely to be present and may also contribute to the visual aesthetics. Examples of man-made features in a rural terrestrial environment include fences, barns, silos, scenic highways, parks, bridges, lighthouses, and public walkways. Sparse residential development may also be present.

The natural features present in a rural terrestrial environment may also be present in an urban terrestrial environment. However, unlike the rural setting, man-made, not natural, features are the dominant visual element. An urban environment is likely to include significantly more residential development than a rural setting. Consequently, there may be more public parks and recreation areas in an urban setting. Vegetation in an urban setting is likely to be cultivated and include lawns, shrubs, and trees. Some natural vegetation may be present in undeveloped areas, or areas not conducive to landscaping. In addition to natural features, man-made features that contribute to the economic development of an area are also likely to be present. Examples of these features include steam/electric plants, office buildings, warehouses, rail yards, parking areas, storage yards, billboards, and signs. Many urban areas are also centers for tourist activity. Examples of man-made visual resources that may be present in urban areas that are also tourist attractions include airports, bridges, statues, and historical landmarks.

3.2.10.2 Marine Environment Visual Resources

As with the terrestrial environment, the marine environment includes both urban and rural settings. Many urban areas that are located along the coast have utilized the coastal water resource to encourage economic development and continued growth. Commercial shipping activity is likely to be a predominant activity in an urban marine environment. Man-made visual resources likely to support this type of activity include lighthouses, canals, docks, and piers. Natural features in the marine environment may include cliffs, lakes, rivers, wetlands, and aquatic vegetation.

The marine environment in a rural setting is likely used primarily for recreational and tourism purposes. Man-made features that facilitate use of the water body for these purposes and may contribute to the visual aesthetic of an area include boat launch ramps, marinas, docks, and piers. Man-made structures designed to control water resources such as dams, bridges, and seawalls may also be present and contribute to the visual aesthetics of the affected environment. The natural features that may be present are varied and include wetlands, freshwater ponds, streams, rivers, lakes, tidal marshes, and an assortment of aquatic vegetation.

The types of visual resources expected to be present at any particular site depend upon the location of the site and not the type of alternative selected (i.e., an existing, leased or new site). Therefore, an alternative-specific discussion of the types of visual resources that would be present is not possible at this time. Information on site-specific visual resources would be provided in the subsequent tiered environmental analysis and documentation prepared for individual site-specific actions.

3.2.11 Socioeconomic Resources

Social and economic resources include elements unique to the human environment, such as population, culture, employment, business activities, tax base, housing characteristics, and education. Many of these resources are measured annually by Federal and State agencies, often with information reported at the county level. These indicators can be used to measure the influence of new investments in the local economy. The investments can be temporary, such as those related to construction, or they can be more permanent, such as those related to operation and maintenance of facilities. A "ripple effect" is often observed, as indirect economic activities such as demand for goods and services respond to the initial direct economic stimulus. The indicators can be evaluated to determine the potential for a proposed project to cause temporary or long-term social and economic effects.

For construction, operation, and maintenance activities such as those required to implement the proposed project, it is important to determine if the local social and economic setting is urban or rural. Urban areas generally have large populations; a broad employment and business base within many industrial sectors; and substantial general labor, construction, and special skills labor pools. Cultural diversity is evident, with specialized services for various ethnic and racial groups. In comparison, rural areas have a smaller employment and business base, often centered on agriculture, mining, forestry, fishing, or tourism. Supplies of available housing are generally small, and demand for housing or public services such as education or utilities can vary considerably with short-term economic shifts. Ethnic diversity is not as common as in urban areas.

3.2.12 Land Use

Land use is the way in which, and the purposes for which, human beings employ the land and its resources. Land use varies throughout the U.S. on several levels including the national level (e.g., rural western U.S. as compared to the more densely populated east coast), regional level (e.g., cities that contain predominantly industrial and commercial land uses adjacent to cities with predominantly residential populations), and local level (e.g., individual communities composed of low density residential interspersed with heavy commercial and light industrial land uses).

Land use planning varies depending on land ownership and jurisdictional boundaries. Land owned by private and municipal entities is generally guided by comprehensive plans that specify the types and locations of land use now and in the future. In most cases the comprehensive plan is developed through a public participation process and approved by publicly elected officials such that the intent of comprehensive plans is to capture the local values and attitudes towards planning and future development. Zoning ordinances and subdivision regulations implement the public will by setting forth in law the decisions made in the planning process. Zoning ordinances and regulations vary throughout the U.S. and are primarily set at the city, county or regional level.

Federally-owned land does not undergo the same type of planning process as land under the ownership of private and municipal entities. Most Federal land planning activities are

under the discretion of the managing agency, which has its own criteria for use, development procedures, and public involvement, and are exempt from local zonings. However, the Federal government attempts to maintain a general policy of being a good neighbor.

Because NDRSMP activities would occur at various locations throughout the contiguous U.S., Caribbean, Alaska, Hawaii, and Guam, the proposed project sites are likely to vary greatly in their land use characteristics. Generally, project sites would be located in coastal areas on government- or privately-owned sites, some with existing antenna towers and others presently undeveloped. To assess the affected environment related to zoning and land use, it would be necessary to survey the area within which the proposed project would occur.

Several land designations are regulated at the Federal level, including: coastal zones, coastal barriers, prime or unique farmlands, and lands regulated under Section 4(f) of the Department of Transportation Act of 1966 [49 U.S.C. 303(c)]. These are discussed below.

3.2.12.1 Coastal Zone

The Coastal Zone Management Act (CZMA) was enacted by Congress to encourage coastal states to develop programs that would comprehensively manage activities having coastal impacts. States with an approved coastal zone management program have the authority to review Federal actions for program consistency. The USCG's COMDTINST M16475.1D, specifies that all USCG activities within or outside the coastal zone that affect any land or water use or natural resource within the coastal zone shall be carried out in a manner that is consistent to the maximum extent practicable with the enforceable policies of approved State (and certain territory) management programs. Federal lands are not considered part of the coastal zone for this purpose; however, the consistency requirement applies to activities on Federal lands that impact coastal zone resources outside those lands. Given the proposed locations of NDRSMP activities, it is likely that certain project activities would take place within a designated CZM area. As such, USCG would need to determine if its actions are within the jurisdiction of a State/territory CZM program, and make a Federal Consistency Determination with the State Coastal Zone Management Plan (CZMP).

3.2.12.2 Coastal Barriers

Coastal Barrier Resource System (CBRS) units are environmentally-sensitive and hazard-prone coastal barrier islands along the coastline. These coastal barriers provide protection for diverse aquatic habitats and serve as a defense against the impacts of severe coastal storms and erosion. The Coastal Barrier Resources Act (CBRA) of 1982 prohibits Federal funding for any project that could result in an increase in development in the CBRS units. Under Section 6 of the CBRA, the USCG is granted exempted status. This exempted status is not applicable to the acquisition of land within the Coastal Barrier System, however. Given the proximity of proposed NDRSMP activities to CBRS units, it is possible that certain project activities would take place within a designated CBRA area.

As such, USCG would need to determine if its actions are within the CBRS units and take the necessary actions to comply with CBRA and its own regulations implementing CBRA.

3.2.12.3 Prime or Unique Farmlands

The Farmland Protection Policy Act (FPPA), and USCG's COMDTINST M16475.1D require that the USCG examine the impacts of its actions on prime or unique agricultural lands, and minimize any potential impacts. Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion. Unique farmland is defined as land other than prime farmland that is used for the production of specific high-value food and fiber crops such as, citrus, tree nuts, olives, cranberries, fruits, and vegetables.

If a proposed project site is considered prime or unique farmland, USCG would be required to make a request to the Natural Resources Conservation Service (NRCS) through the Farmland Conversion Impact Rating Form (Form AD 1006), for determination of whether the site is farmland and subject to FPPA.

3.2.12.4 Section 4(f) Lands

As an agency within the U.S. Department of Transportation, the USCG is required to comply with Section 4(f) of the Department of Transportation Act of 1966 [re-codified as 49 U.S.C. 303(c)]. Commonly known as Section 4(f), the section precludes the DOT from approving any program or project which requires the use of any land from a public park, recreation area, wildlife and waterfowl refuge, or historic site unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreation area, wildlife and waterfowl refuge, or historic site resulting from such use. This includes project activities occurring in proximity to or potentially affecting Section 4(f) lands. COMDTINST M16475.1D specifies that the USCG must determine if there is such a use of Section 4(f) resources.

3.2.13 Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*" (1994) provides that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

The DOT Order on Environmental Justice (1997) was issued to comply with EO 12898. The EO sets forth a process by which DOT and its operating Administrations integrate the goals of the EO into their operations to ensure that the interests and well-being of minority populations and low-income populations are considered during implementation of agency actions. As described in the EO, DOT must "ensure that any of their respective

programs, policies, or activities that will have a disproportionately high and adverse effect on minority populations or low-income populations will only be carried out if further mitigation measures or alternatives that would avoid or reduce the disproportionately high and adverse effect are not practicable." The EO further directs that social, economic, and environmental effects and cost should be taken into account in decisions to avoid or mitigate disproportionately high and adverse effects.

If potential adverse social, economic, or environmental effects of the NDRSMP are experienced in areas with minority populations or low-income populations, the NDRSMP could have disproportionately high and adverse direct, indirect, and cumulative effects. A demographic assessment would be conducted for specific sites that are located near areas of low-income or minority populations. Large minority populations or low-income populations may exist around urban sites. In addition, minorities or persons of low-income may comprise a large proportion of the population in certain rural areas.

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CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

This chapter presents the scientific and analytic basis for comparing the alternatives for modernization of the NDRSMP. This chapter discusses the direct environmental impacts of Alternatives A-D (described in Chapter 2) on the selected environmental resources previously described in the affected environment section of this SPEA. This chapter also discusses, to the fullest extent practicable, cumulative effects. Any resultant irreversible or irretrievable resource commitments are noted, as well as the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Criteria used to evaluate potential impacts are discussed at the beginning of each resource area. This chapter also provides mitigation measures that would typically be employed to reduce impacts to below a level of significance.

4.2 Description of the Effects of All Alternatives on the Affected Environment

4.2.1 Noise

An impact would be significant if the magnitude of the noise levels and the proximity of noise-sensitive receptors are influenced by operational noise levels. A noise-sensitive receptor is commonly defined as the occupants of any facility where a state of quietness is a basis for use, such as a residence, hospital, or church. Facilities located within ¼ mile of a noise source are considered noise-sensitive receptors. Livestock, poultry, and some protected species of wildlife are also considered noise-sensitive receptors.

Construction activity at a site would require the operation of heavy equipment that generates noise. Table 4-1 shows the anticipated noise levels at a distance of 50 feet for miscellaneous heavy equipment. Heavy equipment activity would be a short-term, temporary activity only associated with the initial construction phase. The impact of noise would be greatest on-site or within 50 feet. Noise levels decrease with distance and the impact would therefore be attenuated as distance from the site increases.

Table 4-1 Heavy Equipment Noise Levels at 50 Feet

Equipment Type[a]	Number Used[a]	Generated Noise Levels L_p (dBA)[b]
Bulldozer	1	88
Backhoe (rubber tire)	1	80
Front Loader (rubber tire)	1	80
Dump Truck	1	75
Concrete Truck	1	75
Concrete Finisher	1	80
Crane	1	75
Flat-bed truck (18 wheel)	1	75
Scraper	1	89
Trenching Machine	1	85

a Estimated
b Source: CERL, 1978

Another source of noise associated with operations of an antenna site, would be the use of a generator for emergency back-up power and the continuous, low volume hum of the communications equipment. The generator would run for short periods of time on a regular basis for testing purposes to ensure proper operation, and would automatically come on during periods of power outages.

Ambient noise levels at the site and surrounding the site would greatly influence the perceived impact of these operational noise sources. In an urban environment, other noise sources such as traffic or other construction activities would greatly reduce the impact of these operational noise sources. However, in a rural, relatively unpopulated area these noise sources would be more distinctive and recognizable.

The long-term operation and maintenance of USCG antenna sites will result in less than significant noise impacts.

4.2.1.1 Alternative A - No Action

Under the no-action alternative, the NDRSMP would not be modernized. Therefore, there would be no change from the ambient noise levels described in Section 3.2.1.

4.2.1.2 Alternative B - Modernize the NDRS by Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS

Under this alternative, an existing NDRS antenna tower would be used to deploy the new communications equipment. There are three scenarios possible under this alternative:

1. The tower present at the existing site meets all the requirements for installing the new equipment.

2. The tower present at the existing site is suitable for installing the equipment, but an increase in height is necessary.

3. The tower present at the existing site is not suitable for installing the equipment and must be demolished and replaced with a new tower.

Under scenario 1, the use of construction equipment would be limited to a crane used to remove the old antenna equipment and install the new equipment. The crane would only be operated for relatively short periods of time during daytime hours. In scenario 2, further use of a crane and other heavy equipment would be required to install new sections to the tower structure in addition to the installation of the new communications equipment. Scenario 3 is similar to scenario 2, in that additional heavy equipment activity would be required to dismantle the existing tower and construct a new one.

For antenna towers located in urban settings, construction and operation noise would likely be masked by noise sources typical of an urban setting. Due to low noise levels typical of rural settings, construction noise in rural areas may result in impacts. If sensitive receptors (e.g., sensitive wildlife species, residential developments, schools) have the potential to be disturbed by construction noise, appropriate mitigation measures would be incorporated into project design and construction to minimize the disturbance. Such measures would include the following, as appropriate:

- Performing construction outside of a species breeding or mating season.

- Locating equipment staging areas as far from noise-sensitive receptors as possible.

- In the event that the operation of an emergency backup power generator is determined to cause adverse impacts, a UPS system would be utilized.

- Ensuring that construction equipment is properly maintained so that no additional noise from worn or improperly maintained equipment parts is generated.

- Noise-generating heavy equipment at the project site would be equipped with the manufacturer's standard noise control devices (i.e., mufflers, baffling, and/or engine enclosures).

- For areas only accessible by helicopter, materials/supplies would be packed appropriately to minimize the number of flights.

Less than significant impacts are anticipated from construction, operation, and maintenance of antenna tower sites.

4.2.1.3 Alternative C - Modernize the NDRS by Deploying New Communications Technology to a Leased Commercial Tower Site

Impacts associated with this alternative would be similar to those described for Alternative B, except that the USCG would place antenna equipment on existing towers that meet the criteria for the NDRSMP. Only those sites that meet the height and location requirements would be used to implement this alternative. Consequently, only noise associated with equipment installation (as described above under Scenario 1) would be expected. Less than significant impacts are anticipated from construction, operation, and maintenance of antenna tower sites. Mitigation measures, as described under Alternative B, would be implemented as necessary.

4.2.1.4 Alternative D - Modernize the NDRS by Deploying New Communications Technology to a New Undeveloped Site

Impacts associated with this alternative are similar to those described for Scenario 3 of Alternative B, except that additional site preparation activities (i.e., site grading) would be required. Less than significant impacts are anticipated from construction, operation, and maintenance of antenna tower sites. Mitigation measures, as described under Alternative B, would be implemented as necessary.

4.2.2 Air Quality

Impacts to air quality would be considered significant if Federal actions resulted in a violation of NAAQS, resulted in annual emissions increase of a pollutant greater than 250 tons/year (definition of a "major stationary source" in an attainment area as defined in 40 CFR 52.21(b)(1), or exceeded any significance criteria established by the SIP.

4.2.2.1 Alternative A - No Action

Under the No Action Alternative, the NDRS would not be modernized. Therefore, there would be no increase in short-term or long-term emissions.

4.2.2.2 Alternative B - Modernize the NDRS by Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS

Alternative B would result in short-term emissions during renovation of the existing site due to the use of construction equipment and related vehicles. Long-term emissions would be extremely small due to an insignificant increase in privately-owned vehicle

generator with a capacity of 68 hp. The USEPA has established emission factors for CO, VOCs, SO_X, NOx, and PM_{10} of 0.95, 0.36, 0.29, 4.41, 0.30 lbs. of pollutant per MMBtu (USEPA 2001a. It has been estimated that each generator would potentially operate for 12 hours per year. The emissions caused by the use of the generators would continue to occur after completion of the project, however, their impacts are considered insignificant.

In compliance with 40 CFR 93, the proposed action must be evaluated to address the potential need for preparation of an air quality conformity analysis. A general conformity analysis is required if a federally proposed action is to take place in an existing nonattainment area and the increase in air emissions for each pollutant exceeds the rates outlined in 40 CFR 93.153(b)(1) or exceeds 10% of an areas total emissions for that pollutant. Review of the data in Table 4-2 indicates that the greatest increase in short-term emissions per site would be NO_x (0.0052 tons) from construction/renovation operations. The construction-related emissions would be temporary and would be eliminated after the construction is completed. The greatest increase in long-term emissions per site would be NO_x (0.035 tons) from the use of the stand-by generator. The permanent emissions caused by the increase in POV use are considered to be insignificant. All emissions would fall well below the 10 percent level (when compared to a region's baseline emissions) that would be considered regionally significant by the USEPA if the region were in nonattainment for any of the criteria pollutants.

The NDRS antenna sites would not be classified as major emission sources nor are the short-term and long-term emissions from their construction and operation in any danger of exceeding NAAQS or limits that would be set in a specific SIP. The emission of minor amounts of air pollution would be unavoidable; however, the individual and cumulative impacts during construction would be insignificant. Long-term impacts from criteria pollutant emissions during monthly testing and infrequent use of the stand-by generators and from quarterly equipment maintenance visits would be negligible. In some areas, a local permit to construct and/or operate is required for stand-by generators. In these cases, the USCG would ensure that necessary permits are obtained. Less than significant impacts to air quality are anticipated and no mitigation is warranted.

4.2.2.3 Alternative C - Modernize the NDRS by Deploying New Communications Technology to a Leased Commercial Tower Site

Site components and surrounding area characteristics would be as described in Section 4.2.2.2 above and in Chapter 3, Existing Environment. Emissions from Alternative C on a site by site basis would occur as a result of similar renovation/construction and operational activities as Alternative B. These emissions would be minimal and are summarized in Table 4-2. Less than significant impacts to air quality are anticipated and no mitigation is warranted.

(POV) use and the occasional use of the stand-by generators that would be added to each site, if required.

The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity. The USEPA has estimated that uncontrolled fugitive dust emissions from ground disturbing activities would be emitted at a rate of 80 lbs of total suspended particulate (TSP) per acre per day of disturbance (USEPA 1995). In a USEPA study of air sampling data at a distance of 50 meters downwind from construction activities, PM_{10} emissions from various open dust sources were determined based on the ratio of PM_{10} to TSP sampling data. The average PM_{10} to TSP ratios for top soil removal, aggregate hauling, and cut and fill operations are reported as 0.27, 0.23, and 0.22, respectively (USEPA 1988). Using 0.24 as the average ratio for purposes of analysis, the emission factor for PM_{10} dust emissions becomes 19.2 pounds per acre per day of disturbance. The USCG has estimated that renovation/construction at each site would take approximately 3 weeks (21 days).

The emissions presented in Table 4-2 include the estimated annual PM_{10} emissions associated with the renovation of the existing sites which would primarily be from increasing tower height, adding guy wires for support and the addition of new communication equipment. These emissions would produce slightly elevated short-term PM_{10} ambient air concentrations. The USEPA estimates that the effects of fugitive dust from construction activities would be reduced significantly with an effective watering program. Watering the disturbed area of the construction site twice per day with approximately 3,500 gallons per acre per day would reduce TSP emissions as much as 50 percent (USEPA 1995). The effects from fugitive dust would last only as long as the duration of construction activity, fall off rapidly with distance from the construction site, and would not result in long-term impacts.

Specific information describing the types of construction equipment required for a task, the hours the equipment is operated, and the operating conditions vary widely from project to project. For purposes of analysis, these parameters were estimated using established cost estimating methodologies for construction and experience with similar types of construction projects (Means 1996). Combustive emissions from construction equipment exhausts were estimated by using USEPA approved emissions factors for heavy-duty diesel-powered construction equipment (USEPA 1985) along with the emission factors for the estimated types and numbers of equipment expected to be used during construction. These emissions are included in the short-term emissions in Table 4-2. As with fugitive dust emissions, combustion emissions would produce slightly elevated air pollutant concentrations. However, the effects from construction activities would last only as long as the duration of construction activity, fall off rapidly with distance from the construction site, and would not result in long-term impacts.

A final potential source of increased emissions from Alternative B would be from the occasional use of the stand-by generator that would be added to each site, if necessary, which would be run in case of an emergency power need and during routine maintenance checks. It has conservatively been assumed that every site would have a stand-by

4.2.2.4 Alternative D - Modernize the NDRS by Deploying New Communications Technology to a New Undeveloped Site

Alternative D would result in short-term emissions during construction activities, principally from site clearing activities, if any, and the use of construction equipment and related vehicles. Long-term emissions would be extremely small due to a minimal increase in POV use and the occasional use of the stand-by generators at each site.

A majority of the emissions from Alternative D would occur as a result of construction and operational activities similar to those described in Section 4.2.2.2. Additional emissions would occur as a result of paving the access roads to each new antenna tower site with packed gravel and dirt. The USCG has estimated that any new access road would be approximately 2 miles long. It has been assumed that each road would be 15 feet wide and 6 inches deep. Emissions calculation methodologies are described in Section 4.2.2.2.

In compliance with 40 CFR 93, the proposed action must be evaluated to address the potential need for preparation of an air quality conformity analysis. A general conformity analysis is required if a federally proposed action is to take place in an existing nonattainment area and the increase in air emissions for each pollutant exceeds the rates outlined in 40 CFR 93.153(b)(1) or exceeds 10 percent of an area's total emissions for that pollutant. Review of the data in Table 4-2 indicates that the greatest increase in short-term emissions per site would be PM_{10} (0.79 ton) from construction/renovation operations and any paving operations. The construction related emissions would be temporary and would be eliminated after the activity is completed. The greatest increase in long-term emissions per site would be NOx (0.035 ton) from the use of the stand-by generator. The permanent emissions caused by the increase in POV use are considered to be insignificant. All emissions would fall well below the 10 percent level (when compared to a region's baseline emissions) that would be considered regionally significant by the USEPA if the region were in nonattainment for any of the criteria pollutants.

The NDRS antenna sites would not be classified as major emission sources nor are the short-term and long-term emissions from their construction and operation in any danger of exceeding NAAQS or limits that would be set in a specific SIP. The emission of minor amounts of air pollution would be unavoidable; however, the individual and cumulative impacts during construction would be insignificant. Long-term impacts from criteria pollutant emissions during monthly testing and infrequent use of the stand-by generators and from quarterly equipment maintenance visits would be negligible. In some areas, a local permit to construct and/or operate is required for stand-by generators. In these cases, the USCG would ensure that necessary permits are obtained. Less than significant impacts to air quality are anticipated and no mitigation is warranted.

Table 4-2 Proposed Action Emissions

Criteria Air Pollutant	CO (tpy)	VOC (tpy)	NO_x (tpy)	SO_x (tpy)	PM10 (tpy)	Pb (tpy)
Short-Term Emissions Per Site						
Alternative A (300 Sites)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Alternative B (300 Sites)	0.0023	0.0004	0.0052	0.0006	0.0013	0.0000
Alternative C (377 Sites)	0.0023	0.0004	0.0052	0.0006	0.0013	0.0000
Alternative D (377 Sites)	0.1114	0.0238	0.2762	0.0293	0.7924	0.0000
Long-Term Emissions Per Site						
Alternative A (300 Sites)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Alternative B (300 Sites)	0.0075	0.0029	0.0350	0.0023	0.0025	0.0000
Alternative C (377 Sites)	0.0075	0.0029	0.0350	0.0023	0.0025	0.0000
Alternative D (377 Sites)	0.0075	0.0029	0.0350	0.0023	0.0025	0.0000

Alternative B emissions include renovation/construction emissions (existing sites) and stand-by generator emissions

Alternative C emissions include renovation/construction emissions (existing sites) and stand-by generator emissions

Alternative D emissions include construction emissions (new sites and access roads) and stand-by generator emissions

tpy tons per year.

4.2.3 Earth Resources

Impacts to geologic resources and topography can result from disturbances to the ground surface during construction activities at a site. The disturbance of the ground surface can result in increased erosion of soil or altering of significant landforms (e.g., a hill or cliff top). Significance of impacts to earth resources is difficult to quantify due to the site specificity of the resources and setting. If the proposed site is relatively flat with little or no cutting and filling necessary to create a level construction area, impacts to earth resources would be less than significant. If, however, by necessity the site is located in an area with topographic relief greater than 10 feet, cutting and filling activities to create a level area may result in adverse impacts. The significance of these impacts would be influenced by the geology at the site (i.e., whether the site is underlain by soil or rock), which would determine the likelihood of erosion.

4.2.3.1 Alternative A - No Action

Under the no-action alternative, geologic and topographic disturbances would not occur. Therefore, there would be no change from the baseline conditions described in Section 3.2.3.

4.2.3.2 Alternative B - Modernize the NDRS by Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS

Under Alternative B, if a new tower does not have to be constructed (i.e., NDRS equipment installation alone or in conjunction with increasing the tower height), there would be no impact to earth resources since the antenna site has already been established and no earth-moving activities would be necessary. Therefore, there would be no change from the baseline conditions described in Section 3.2.3 for these scenarios, and no mitigation is warranted.

If the existing tower must be demolished and replaced, potential impacts to earth resources would occur in the form of soil disturbance and increased erosion from site re-grading, if necessary. No additional access roads or installation of utility lines would be required. The new tower would be placed in the same location or adjacent to the old, previously disturbed site. As such, less than significant impacts to earth resources are expected. Mitigation measures to control erosion from the site would include the installation of silt fences, placement of erosion control blankets, and/or promptly installing the final ground covering (i.e., revegetation, spreading gravel).

4.2.3.3 Alternative C - Modernize the NDRS by Deploying New Communications Technology to a Leased Commercial Tower Site

Under Alternative C, there would be no impact to earth resources since the antenna site has already been established and no earth-moving activities would be necessary. As such, less than significant impacts to earth resources are expected. Therefore, there would be no change from the baseline conditions described in Section 3.2.3, and no mitigation is warranted.

4.2.3.4 Alternative D - Modernize the NDRS by Deploying New Communications Technology to a New Undeveloped Site

Potential impacts to earth resources in the form of soil disturbance and increased erosion potential would result from site grading, construction of access roads and tower platforms, installation of utilities lines, and installation of security fencing. The surface area that is required for an antenna site is approximately 5625 square feet or 0.13 acre.

The USCG would follow all applicable Federal, State, and local regulations governing erosion control at construction sites. Implementing mitigation measures such as installing silt fences, placement of erosion control blankets, and/or promptly installing the final ground covering (e.g., revegetation, spreading gravel) would prevent erosion impacts from becoming significant. Additionally, the site could be relocated to an area less prone to erosion or one that requires less cutting and filling to create a level area.

If the site selected is on a currently unused portion of land on an active USCG station, the impact would be lessened, because a site could be selected which had been developed or

used previously and is currently vacant. Sites that have never been developed in any way would unavoidably impact earth resources. However, the small area of disturbance would help minimize the extent of adverse impacts. New towers built on undeveloped sites would require individual assessment to determine the degree of significance of any impacts to earth resources.

4.2.4 Water Resources

Construction of a new USCG communications facility, or the modification of existing antenna facilities, may affect runoff into natural waterways and may impact stormwater runoff patterns due to the increase of impervious area on the site. Carrying out any of the deployment alternatives for the NDRSMP would require the use of water resources mainly during the construction phase of the project. Construction would not add long-term stress on ground and surface waters due to human consumption since no population growth is anticipated as a result of new construction or modification of existing facilities. If the USCG decides to update the NDRS through any of the deployment alternatives (Alternatives B, C, and D) it would work closely with State and local agencies, such as the health department and water pollution control agencies, that regulate the protection of groundwater resources.

Impacts to surface water and groundwater resources would be considered significant if any of the following criteria were applicable:

- Surface or groundwater quality declined such that the existing water quality standards would be violated,
- Water usage from the underlying aquifer increased significantly so that usage had an impact of the aquifer, and
- Surface water quantities were depleted such that water rights of downstream users were violated.

4.2.4.1 Alternative A - No Action

Under the no action alternative, no new facilities would be built and existing facilities would not be modified. Therefore, the no action alternative would not impact water resources. Floodprone areas would remain subject to future flooding and any attendant water quality issues would remain the same.

4.2.4.2 Alternative B - Modernize the NDRS by Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS

Modernizing an existing antenna site would involve replacing communications equipment, possibly increasing the height of the tower, and possibly demolition and construction of a new antenna tower. These activities are subject to review and permitting by local, State, and Federal authorities. Certain states have more than one agency or State

board that work together to protect the State's water resources. These entities are responsible for establishing water quality standards and objectives that protect the beneficial uses of different waters.

Under this alternative, the effects to water resources would result from vehicular traffic transporting tools and equipment to and from the site, as well as site grading activities if a new antenna tower is constructed. Site grading would be minimal because the new tower would be constructed in the same location as the old tower.

The potential exists for the construction equipment to spill or leak fuel and/or grease onto unprotected soil. This hazardous material could then leach into the subsurface and contaminate the groundwater, or runoff into nearby surface waters.

Carrying out facility modification or construction activities at existing sites would require the use of water resources mainly during the construction phase of the project. However, modification of existing antenna facilities may affect long-term runoff into natural waterways and may impact stormwater runoff patterns if there is an increase of impervious area on the site. During facility modification activities, grading, clearing and excavation could also impact water resources at a site. These activities create the potential for fuel, grease, and other contaminants to be released into the environment and carried to nearby waters by surface runoff or leaching into the groundwater aquifer. Sediment may also be carried to nearby surface waters during the modification activities. Standard Best Management Practices (BMPs) will be put into practice to control erosion and following plans such as a Spill Prevention, Control and Countermeasures (SPCC) Plan would contain potential releases. Additionally, the long-term service and maintenance of the USGS antenna facilities would require human presence on a regular basis. This activity may result in the same potential for grease/fuel leaks described above.

The CWA regulates water quality of all discharges into "waters of the U.S.". Both wetlands and dry washes (channels that carry intermittent or seasonal flow) are considered "waters of the U.S." The USEPA's Water Quality Management (WQM) Program, Sections 106, 205, 208, and 303 of the CWA, was developed to control point and non-point sources of water pollution. Some states have adopted equivalent or more stringent statutes than the Federal statute. If activities on USCG-leased sites result in discharges to nearby waters, the previously mentioned sections of the CWA would apply to the project.

The National Pollution Discharge Elimination System (NPDES) Permit Program, Section 402 of the CWA, regulates wastewater discharges from point sources. The NPDES Stormwater Construction Permit may be necessary before construction modification activities commence at a USCG leased site. This permit is generally required for any construction activity that affects 5 acres or more, unless local restrictions impose smaller acreage. However, construction activity that includes "routine maintenance to maintain original lie and grade, hydraulic capacity, or original purpose of the facility" is specifically excluded.

Site specific water quality problems need to be assessed in greater detail, including the adoption of site-specific mitigation measures to protect water quality and beneficial uses. Section of the 319 CWA would be consulted to assess non-point source water pollution problems, develop non-point source pollution management plans, and implement controls to protect and improve water quality and beneficial uses. State water pollution control agencies would be involved to determine what pollution control measures should be adopted to implement the State's non-point source pollution management plans.

The Safe Drinking Water Act (SDWA) (Surface Public Water Supply and Underground Water Source Program) was developed by the USEPA and contains primary drinking water regulations. These regulations were established to protect public health and prescribe requirements for State programs to implement the public water supply supervisor program and underground injection control program under authority of SDWA.

In many areas of the country, counties and cities have developed special descriptions of existing surface and groundwater resources. The local governments may have adopted watershed management plans or coastal management plans to regulate changes to and/or discharges into local waters. For example, if the modifications to a leased facility require construction of an access road capable of supporting construction vehicles, alteration of natural waterways that may impact the volume or quality of water entering a natural waterway may be necessary. In this scenario, State or local regulations must be reviewed to find out if there are additional permits necessary. For instance, changes to natural waterways (channels that carry intermittent or seasonal flow) or culvert discharge into a "dry wash" in California may require a Streambed Alteration Permit.

The NEPA compliance process requires Federal agencies to consider direct and indirect impacts to floodplains that may result from Federally funded actions. EO 11990 (Wetland Protection) states that Federal agencies must avoid adversely impacting wetlands destruction and preserve the value of the wetlands. Regulations pertaining to wetlands are described in the Biological Resources section of this report. All proposed projects by the USCG must comply with EO 11988, Floodplain Management and DOT Order 5650.2, Floodplain Management and Protection. These orders require that agencies avoid construction in the base floodplain unless it is the only practicable alternative. Any part of a project that is located in a base floodplain is considered encroachment; however, COMDINST M16475.1D states that piers, pilings, or pile bents that are located in the floodplain are not considered encroachment. Any encroachment will be evaluated as to its significance. If no practical alternative exists to encroachment, the project must be designed to minimize potential harm to or within the floodplain. The design must meet three criteria: reduce the hazard and risk of flood loss; minimize the impact of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial floodplain values. Construction modification, including increasing antenna height, and construction of new antenna towers located within a Federally or locally designated floodplain are subject to permits issued by local authorities and based on State and Federal regulations.

4.2.4.3 Alternative C - Modernize the NDRS by Deploying New Communications Technology to a Leased Commercial Tower Site

Deploying new NDRS communications technology to a commercial, contractor-owned antenna tower site would involve only the addition of new communications equipment. As such, the effects of this alternative would be the same as those described for Alternative A.

4.2.4.4 Alternative D - Modernize the NDRS by Deploying New Communications Technology to a New Undeveloped Site

This alternative would include the construction of new antenna towers on previously undeveloped sites. New construction on an undeveloped site would have the greatest potential impact on water resources on and adjacent to the site. The effects of this alternative would be the same as those described for new antenna tower construction under Alternative B, with the following additions.

Construction in undeveloped sites near water may also require the construction of storm protection (riprap); depending on site specific conditions, this activity and associated permits may warrant further investigation.

The USCG will need to work with the USACE if fils are placed for the proposed construction on an undeveloped site. A USACE Dredge and Fill permit will be required for this activity. This permitting authority is established under Section 404 of the Clean Water Act. Certain Federal projects may be exempt from these requirements if the project meets the conditions of Section 404(r). The Department of the Army is also the permitting authority for the construction of structures in or affecting navigable waters of the U.S., including the construction of bridges over the water and tunnels beneath the water. This authority is granted under Section 10 of the Rivers and Harbors Act of 1899. These construction permits may require applying for a nationwide general permit or gaining approval from a district or division engineer on a regional basis.

Site specific water quality problems would be assessed in greater detail at undeveloped sites, including the adoption of site-specific mitigation measures to protect water quality and beneficial uses. Section 319 of the CWA would be consulted to assess nonpoint source water pollution problems, develop nonpoint source pollution management plans, and implement controls to protect and improve water quality and beneficial uses. State water pollution control agencies would be involved to determine what pollution control measures should be adopted to implement the State's nonpoint source pollution management plans. Additionally, the Clean Water Act requires any person or agency to obtain a State 401 Water Quality Control permit prior to approval for a federal permit for any activity which may cause a discharge into waters of the U.S.

Before selecting an undeveloped site for construction under the NDRSMP, the USCG would review local and Federal floodplain data available for the site. Floodplains are designated on Flood Insurance Rate Maps (FIRM) and/or Flood Boundary Floodway Maps for communities participating in the Federal Emergency Management Agency's

(FEMA) National Flood Insurance Program (NFIP). The regulations governing the NFIP (44 CFR 59 through 77) stipulate the minimum standards for floodplain development in participating communities. In addition to containing information regarding 100- and 500-year flood elevations, CBRSs and Otherwise Protected Areas (generally coastal areas protected by the Coastal Barrier Resources Act) are delineated on FIRMs. New construction or construction modifications in these areas require acceptance by the U.S. Fish and Wildlife Service and must be approved by FEMA. New construction is generally prohibited in locally or Federally designated floodways (the river channel and adjacent land areas that discharge the majority of the base floodwaters). The impact of construction within the regulatory floodway would be significant. Hydrology and hydraulic studies would need to be conducted to demonstrate that implementing this alternative would not increase the effects of flooding upstream and downstream of the site. Mitigation measures required to reduce the effects of flooding upstream and downstream of the site would vary depending on site specific conditions. Mitigation measures could include rip rapping channels, stormwater management facilities, protection on slopes, velocity dissipaters, levees/floodwalls, or grass lined swales.

4.2.5 Infrastructure and Utilities

4.2.5.1 Utilities Availability (quality and supply)

Utilities potentially impacted by deployment of the NDRSMP include any above- or below-ground utility that could be present on or near any site, including electricity, sanitary sewer, potable water, natural gas, fuel, steam, fiber-optic cable, and telephone. A significant impact to utility availability due to project activities would be indicated by:

- Degradation of the quality of the utility source/supply; or
- Consumption of or damage to the utility supply in such a way as to limit availability of that utility to other users.

4.2.5.1.1 Alternative A - No Action

Under the no-action alternative, no activity would be performed and no resultant impact to utility availability would occur. No mitigation measures are warranted.

4.2.5.1.2 Alternative B - Modernize the NDRS by Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS

Under Alternative B, the scenario associated with the greatest potential impact to utility availability would be the case in which an existing tower is not suitable for use in its current condition and must be demolished and reconstructed in order to deploy the required equipment. In this situation, demolition, disposal, excavation, and installation of new equipment would result in the greatest degree of disturbance to the site and surrounding areas compared to sites at which existing facilities would be utilized. Other possible scenarios under this alternative (e.g., installation of equipment using existing

tower, resources, etc.) would involve less site work and fewer potential impacts to utility availability.

Regardless of the specific project site's location, sources of electricity and communication services would already be in place to serve existing equipment; however, removal and relocation or replacement of existing utility lines could be required, depending on the location of the new equipment and the condition of existing utility lines. Utility consumption for new equipment would be relatively similar to the requirements of existing components to be replaced. Accordingly, deployment of new equipment at an existing site would not result in a significantly increased demand on the available utility. Short term utility usage increases (electricity and/or water) may be required during the upgrading activities, depending upon the specific tasks required at a given site. Electricity required for upgrade construction or installation (electric hand tools, etc.) would be obtained from existing on-site electrical outlets, while any water required for site work would be taken from nearby existing sources or brought in by truck as needed.

Less than significant short-term and/or long-term impacts to utility quality or availability associated with this alternative are anticipated, unless deployment activities result in physical damage to a utility infrastructure. Care must therefore be taken to avoid existing utilities, and underground utility locating services or authorities must be contacted prior to conducting any excavation activities.

4.2.5.1.3 Alternative C - Modernize the NDRS by Deploying New Communications Technology to a Leased Commercial Tower Site

Under Alternative C, installation of equipment on an existing tower would be less likely to impact utility availability. As in Alternative B, increased electricity and water needs would be associated with any modification activities; however, these temporary needs would be easily accommodated and very limited in scope. Less than significant short-term and/or long-term impacts to utility quality or availability associated with this alternative are anticipated unless deployment activities result in physical damage to a utility infrastructure. Care must therefore be taken to avoid existing utilities, and underground utility locating services or authorities must be contacted prior to conducting any excavation activities.

4.2.5.1.4 Alternative D - Modernize the NDRS by Deploying New Communications Technology to a New Undeveloped Site

The purchase or lease of undeveloped land and construction of required facilities would involve similar possible impacts to those described in Alternatives B and C; however, more extensive construction activities would be required under Alternative D. Construction of up to 2 miles of utilitiy lines and access roadway may be required. Water is more likely to be needed for site improvement activities (dust suppression, compaction, etc.) under this alternative, since existing facilities would not be available for use and a greater degree of site work and construction would be required. However, the amount of

water required for construction would be relatively small and could easily be provided through the use of water trucks if no water service is present on site. Less than significant short-term and/or long-term impacts to utility quality or availability are anticipated unless construction, excavation, or maintenance activities result in physical damage to a utility system or installation of a utility on site requires an interruption of surrounding service. Care must be taken to avoid existing utilities, and underground utility locating services should be contacted prior to conducting any excavation activities on or adjacent to the site.

4.2.5.2 Solid Waste Management

A significant impact to solid waste management resources would be indicated by the generation of an amount of solid waste which could not be removed and/or disposed of by locally or regionally available providers or accommodated by existing disposal facilities. This section only addresses the management of non-hazardous materials; impacts associated with the management of any hazardous waste generated during demolition or construction activities are addressed in Section 4.2.6.

4.2.5.2.1 Alternative A - No Action

Under the no action alternative, no activity would be performed, thus less than significant impacts to existing solid waste management activities or facilities would occur. No mitigation is warranted.

4.2.5.2.2 Alternative B - Modernize the NDRS by Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS

Facilities upgraded under this alternative may require removal and disposal of unnecessary equipment. The deployment scenario associated with this alternative that would generate the greatest quantity of debris would be that in which demolition and reconstruction of existing equipment would be necessary to perform the required upgrades. Off-site infrastructure already in place to serve the existing equipment would be adequate to support the maintenance of the new communications technology. Other scenarios in which existing equipment is utilized to a greater degree would generate a smaller quantity of debris. In all situations where waste requiring disposal is generated, waste manifests should be maintained indicating the quantity and type of waste generated, the transportation service used, and the disposal location. Due to the relatively small size of the facilities, demolition and construction activities would result in minimal impacts to any existing solid waste management services and thus no mitigation is warranted.

4.2.5.2.3 Alternative C - Modernize the NDRS by Deploying New Communications Technology to a Leased Commercial Tower Site

Under this alternative, the NDRS equipment would be installed on an existing contractor-owned antenna tower. Solid wastes generated from the installation of the communications equipment would be minimal. No impacts are anticipated and mitigation is not warranted.

4.2.5.2.4 Alternative D - Modernize the NDRS by Deploying New Communications Technology to a New Undeveloped Site

Facilities constructed on undeveloped sites under Alternative D have the potential to result in generation of the greatest amount of waste in comparison to other alternatives because on-site construction work would be required and off-site infrastructure (e.g., access roads) necessary to support the site may require construction. Activities anticipated under Alternative D include site clearing, installation of utility service lines, and construction of access roads. Although this alternative could involve the generation of a relatively larger quantity of waste than other alternatives, the relatively small size of the sites and facilities should limit site work such that the amount of waste generated would not cause a significant impact to local or regional solid waste management resources. In all situations where waste requiring disposal is generated, waste manifests would be maintained indicating the quantity and type of waste generated, the transportation service used, and the disposal location. Regardless of the amount of site work required, waste generation should be minimized by limiting land clearing to that essential for construction of required items, and mulching brush and wood generated during land clearing.

4.2.5.3 Drainage

At facilities using electronic equipment, protection of such equipment from water is imperative and measures must be taken to provide adequate drainage and flood protection of facilities. Significant impacts to local and area drainage would be indicated by the following:

- Flooding of adjacent stormwater infrastructure caused by accumulation of sediment eroded from the site (reducing flow capacity);
- Flooding of adjacent stormwater infrastructure due to an increase in the amount of runoff from the site (caused by clearing land or increasing impervious area); or
- Blockage or other modification of existing drainage infrastructure by the work, resulting in a detrimental effect on surrounding area drainage.

Site activities such as grading and construction can also result in increased runoff of water containing chemicals used in construction or suspended particles eroded from bare areas, which can degrade the quality of nearby water courses. Permitting issues and

impacts to surface water quality associated with storm water are discussed in Section 4.2.4.

4.2.5.3.1 Alternative A - No Action

Under the no-action alternative, no activity would be performed and no impacts to existing local or area drainage characteristics would occur. No mitigation is warranted.

4.2.5.3.2 Alternative B - Modernize the NDRS by Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS

The deployment scenario under Alternative B associated with the greatest potential impact to drainage infrastructure would be that which would require the greatest degree of site work and construction: the situation where existing equipment or utilities were not adequate to support new communications technology, requiring removal and reconstruction of existing features (towers, equipment sheds, etc.). Other scenarios which would involve utilization of existing equipment to a greater degree would have less potential for impact to drainage infrastructure. Existing off-site utilities and access roads would not require modification for use under this scenario.

Site work and construction could result in the alteration of local drainage patterns, which could affect the ability of existing infrastructure to protect other areas from flooding. Such activities are also likely to result in erosion of material from the site, which could accumulate in adjacent stormwater drainage features (e.g., pipes, ditches) and potentially block or limit the flow capacity of the feature. Demolition and construction work performed at sites in developed areas would be more likely to impact drainage infrastructure, since stormwater management infrastructure is more likely to be close to those sites. Project sites located in remote areas are less likely to be adjacent to manmade stormwater management structures or networks; however, care must still be taken not to similarly impact any natural drainageways.

Mitigation measures available to minimize or prevent impacts to drainage infrastructure include the following: minimize the erosion of solids from the work site by minimizing the area of land to be cleared, properly managing materials stored on site that may be exposed to rainfall (soil stockpiles, etc.), and installing erosion control measures such as silt fencing around disturbed areas. Minimization of the area of land to be cleared or covered with impervious surfaces (e.g., slabs, buildings) would also reduce the amount of stormwater runoff leaving the site which must be accommodated by existing drainage features. Finally, area drainage patterns would be considered when planning site improvements to ensure that existing drainage patterns are not negatively impacted.

4.2.5.3.3 Alternative C - Modernize the NDRS by Deploying New Communications Technology to a Leased Commercial Tower Site

Under this alternative, the NDRS equipment would be installed on an existing contractor-owned antenna tower. Therefore, no changes to drainage patterns would occur and no mitigation is warranted.

4.2.5.3.4 Alternative D - Modernize the NDRS by Deploying New Communications Technology to a New Undeveloped Site

Deployment of new NDRS technology at an undeveloped site would involve the same potential impacts to drainage infrastructure as described in Alternative B; however, a greater degree of site work and longer construction time period would be required for these sites. Also, additional grading and construction work would be required to provide access roads in areas where they do not presently exist (more likely to be required for sites in remote and/or rural locations).

As described in the previous alternatives, measures available to mitigate impacts of the site work to drainage infrastructure include the following: minimize the erosion of solids from the work site by minimizing the area of land to be cleared, properly managing materials stored on site that may be exposed to rainfall (soil stockpiles, etc.), and installing erosion control measures such as silt fencing around disturbed areas. Minimization of the area of land to be cleared or covered with impervious surfaces (e.g. slabs, buildings) would also reduce the amount of stormwater runoff leaving the site which must be accommodated by existing drainage features. Finally, area drainage patterns must be considered when planning site improvements to ensure that existing drainage patterns are not negatively impacted. Contact should be made with municipal, county, or State officials in order to secure permission and determine the correct procedures for rerouting of any stormwater anticipated to be necessary for the work.

4.2.5.4 Transportation and Access

The following would be indicators of significant impacts to transportation and access:

- Deterioration of the physical condition of roads associated with site access/egress;
- Increased traffic congestion and reduction in traffic flow capacity of roadways leading to/from or adjacent to a site; or
- Facility structures located such that driver sight distance is obstructed (at an intersection, etc.) or adjacent roadway safety is otherwise compromised.

4.2.5.4.1 Alternative A - No Action

Under the no-action alternative, no activity would be performed and no impacts to existing transportation or access characteristics would occur. No mitigation is warranted.

4.2.5.4.2 Alternative B - Modernize the NDRS by Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS

The deployment of new communications technology to existing antenna tower sites that support the NDRS would involve modernization of existing antenna sites by replacing equipment (e.g., tower, antenna), possibly increasing the height of the tower, and the addition of new communications equipment. The scenario that would be associated with the highest potential for impact to transportation and access would be that which required the greatest degree of demolition and construction in order to deploy the new equipment. Such a scenario could involve tower disassembly and removal, foundation preparation, tower reconstruction, and utility upgrades, and would require the greatest amount of equipment to be in use at the site for the longest period of time. Access roads in place to serve the existing facility would be utilized.

Demolition and construction of facilities could result in short-term impacts to local or regional roadway traffic, such as temporary road closures or delays resulting from the movement of construction equipment and vehicles. Construction associated with a site in a high-traffic area would be more likely to impact local transportation than construction taking place at a site in a less congested, remote setting; however, construction in an area with few transportation routes could result in a greater impact to traffic than construction at a site located in a more developed area where alternate traffic routes may be more easily arranged. Measures available to mitigate impacts of the site work to transportation include the following: storing construction vehicles and equipment on-site during project construction; posting appropriate signage on affected roadways; and providing timely notification of potential roadway closures to area residents.

In each instance, contact should be made with municipal, county, or State officials in order to secure permission and follow the correct procedures for rerouting of traffic, lane closures, etc. that are anticipated to be necessary for the work. Since operation and maintenance of antenna sites requires very infrequent visits by workers, it is anticipated that there would be less than significant long-term impacts to transportation and circulation associated with this alternative.

4.2.5.4.3 Alternative C - Modernize the NDRS by Deploying New Communications Technology to a Leased Commercial Tower Site

The types of potential impacts to local and/or regional transportation and access and potential mitigative measures are the same as those described above in Alternative B, except that no modification or demolition/construction of antenna towers would occur. Long-term impacts to transportation and circulation would be less than significant and mitigation measures would be the same as those described for Alternative B.

4.2.5.4.4 Alternative D - Modernize the NDRS by Deploying New Communications Technology to a New Undeveloped Site

Deployment of new NDRS technology at a currently undeveloped site would involve the same potential impacts to transportation and access as those described in Alternative B; however, it would be much more likely that a greater degree of site work and longer construction time period would be required. Additionally, since sites associated with this alternative are currently undeveloped, additional construction would be required to construct access roads in areas where they do not presently exist (more likely to be required for sites in remote and/or rural locations). The types of potential short-term impacts to transportation and access are the same as those described for Alternative B, though they are more likely to occur.

As described above, measures available to mitigate impacts of the site work to transportation include the following: storing construction vehicles and equipment on-site during project construction; posting appropriate signage on affected roadways; and providing timely notification of potential roadway closures to area residents. Again, contact should be made with municipal, county, or State officials in order to secure permission and determine the correct procedures for rerouting of traffic, lane closures, etc. that are anticipated to be necessary for the work. Finally, since operation and maintenance of antenna sites require very infrequent visits by workers, it is anticipated that there would be less than significant long-term impacts to transportation and circulation associated with this alternative.

4.2.6 Hazardous Substances

Hazardous Substances and Wastes

Impacts from hazardous substances would be significant if site construction workers, members of the surrounding population, and/or the environment were exposed to potentially harmful concentrations of hazardous or other regulated materials, substances or wastes. Significant impacts would also occur if hazardous wastes were collected, stored and/or disposed of improperly. The potential for impacts can be mitigated by properly training site personnel, providing appropriate personal protective equipment, and/or developing a hazardous waste management plan.

Some of the possible sources of hazardous substances or materials at a site include batteries from the power back-up system, obsolete electronics equipment, electronic solvents, fuel for back-up generators or construction equipment, used oil from back-up generators, and paint.

RF Radiation

There is currently no research that proves that harmful biological effects can result from exposure to low-level RF radiation. However, there are multiple sources of information that list maximum permissible exposure, also known as permissible exposure limits (PEL), for RF radiation. The Federal Communications Commission (FCC) adopted

guidelines for RF radiation in 1996, which were developed by American National Standards Institute (ANSI) and the Institute of Electrical and Electronics Engineers, Inc in 1992. These exposure criteria identify the threshold level at which harmful biological effects may occur, based on the electric and magnetic field strength and power density. FCC guidelines are most stringent for the frequency range from 30 to 300 MHz, the range in which the human body absorbs RF radiation most efficiently. PELs are categorized by an Occupational Population, which applies to human exposure to RF fields when the person is exposed because of their employment, they have been made fully aware of the potential for exposure, and can exercise control over their exposure (USCG 2002b). The other category is the General Population, which applies to human exposure to RF fields when the general public may be exposed or when personnel exposed because of their employment may not be aware of exposure or cannot exercise control over the exposure (USCG 2002b). A significant impact would occur if exposure limits to the Occupational or General Population exceeded the maximum permissible exposure limits.

Operating power is a major factor in determining exposure limits. Commercial radio and television stations operate in a range from a few hundred watts up to millions of watts. The FCC only requires that tower-mounted installation be evaluated if antennas are mounted lower than 10 meters above the ground and the total power of all channels being used is over 1000 watts effective radiated power. Based on the operating power of 50 watts at the NDRS towers currently in place, it is reasonable to assume that the potential for harmful exposure to RF radiation from these antennas is extremely low.

4.2.6.1 Alternative A - No Action

Impacts to Hazardous Substances and Waste

Under the no-action alternative, there would be no change from the baseline conditions described in Section 3.2.6. No mitigation is warranted.

Impacts from RF Radiation

Under the no-action alternative, there would be no change from the baseline conditions described in Section 3.2.6. No mitigation is warranted.

4.2.6.2 Alternative B - Modernize the NDRS by Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS

Impacts to Hazardous Substances and Waste

For existing USCG remote/unmanned communication sites, in-place policies and procedures have been developed should assets like fuel tanks, towers, etc. require disposal. Periodic USCG program improvements at remote communication sites have also provided environmental improvements. Underground facilities were converted to above ground properly sealed systems with environmental and safety sensors/alarms. These current practices would continue with implementation of the NDRSMP, resulting

in minimized environmental risk and costs related to asset disposal. Based on the discussion presented above, significant environmental impacts with respect to disposal of system components as related to the life cycle of a particular antenna site are not anticipated. Therefore, there would be no change from the baseline conditions described for existing and leased sites in Section 3.2.6. No mitigation is warranted.

Impacts from RF Radiation

The power input to the antenna, which is the determining factor in calculating radiation hazards, would not be changing. The change in broadcast frequency would not significantly impact the safety factor. Additionally, existing sites currently meet guidelines in USCG COMDTINST M10550, *Electronics Manual.* Therefore, there would be no change in the baseline conditions described in Section 3.2.6. No mitigation is warranted.

4.2.6.3 Alternative C - Modernize the NDRS by Deploying New Communications Technology to a Leased Commercial Tower Site

Impacts to Hazardous Substances and Waste

For leased sites, the site facilities and their associated maintenance/disposal are not the USCG's direct responsibility. However, if a USCG-owned and installed tower/fuel containment system is placed on a leased site, the USCG would be responsible for the maintenance/disposal of those assets as described above. In accordance with the Resource Conservation and Recovery Act, the USCG (as the registered owner of the fuel containment system) would be responsible for the cradle-to-grave management of the system and any wastes generated during the operation and maintenance of the system. Based on the discussion presented above, significant environmental impacts with respect to disposal of system components as related to the life cycle of a particular antenna site are not anticipated. Therefore, there would be no change from the baseline conditions described in Section 3.2.6. No mitigation is warranted.

Impacts from RF Radiation

The power input to the USCG-owned antennas on commercial sites would not change and the change in broadcast frequencies resulting from the technology upgrades would not significantly affect the safety factor. Additionally, these sites are currently meeting FCC guidelines, on which the USCG guidelines are based. Therefore, there would be no change from the baseline conditions described in Section 3.2.6. No mitigation is warranted.

4.2.6.4 Alternative D - Modernize the NDRS by Deploying New Communications Technology to a New Undeveloped Site

Impacts to Hazardous Substances and Waste

The handling of hazardous substances and wastes under this alternative would be identical to the procedures described for Alternative B above. Therefore, there would be

no change from the baseline conditions for undeveloped sites described in Section 3.2.6. No mitigation is warranted.

Impacts from RF Radiation

The potential for exposure under this alternative would be the same as that described for Alternatives B and C. However, because these sites would be established at a previously undeveloped location, certain measures would be required to restrict access to antenna sites. Such measures would include:

- Placing warning signs explaining the dangers associated with RF radiation exposure at remote antenna sites.
- Installing fences around antenna sites that are highly accessible to the public.
- Establishing a PEL boundary to delineate the radiation hazard exclusion zone, to inform technicians when they must be concerned about their averaging times, and to restrict access to the general public.

Based on the low potential for harmful exposure and adherence to the above guidelines, it is anticipated that less than significant impacts from RF radiation would occur under this alternative.

4.2.7 Biological Resources

This section describes the criteria for determining whether a biological impact is significant; describes the predicted impacts by action alternative and biological resource category (vegetation, wetlands, etc); and then discusses mitigation that could reduce impacts to a level of insignificance. Because this is a program EA, specific site impacts must be assessed in separate supplemental environmental reviews. However, this section provides guidance for use in the making the site-specific assessments.

Significant impacts potentially affecting biological resources are those that would result in one or more of the following:

- For migratory birds—possible collisions of migratory birds with towers pose a potential violation of the Migratory Bird Treaty Act and are not consistent with EO 13186.
- For vegetation and wildlife—if the proposed action were to result in a long-term reduction in vegetation productivity or permanent changes in species composition, and if the proposed action were to disrupt the breeding activities and subsequent reproduction of wildlife. In particular, if the proposed action were to result in a violation of Section 4(f) of the Department of Transportation Act of 1966, which states that the Secretary of Transportation shall not approve any project that requires the use of any wildlife or waterfowl refuge unless there is no feasible and prudent alternative to the use of such

land and that the project include all possible planning to minimize harm to the refuge.

- For T&E species—any adverse effect to a Federally listed T&E species or its critical habitat. Furthermore, any action that could result in a substantial infusion of exotic plant or animal species or that could jeopardize a candidate species (EO 13112, "Invasive Species").

- For wetlands— if the proposed action were to result in violations of Section 404 of the CWA or EO 11990.

- For floodplains-if the proposed action were to result in violations of EO 11988.

4.2.7.1 Alternative A - No Action

Under Alternative A, the NDRS would not be modernized. Therefore, there would be no new impacts to biological resources.

4.2.7.2 Alternative B - Modernize the NDRS by Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS

This alternative would result in improving existing NDRS sites and could result in minor expansion of existing sites and possibly higher antenna structures. Impacts would therefore be directly related to the increase in profile of the antenna. Although the extent of renovations required to implement Alternative B would vary depending upon the suitability of the existing site and the extent of modifications needed, no additional land would be required to implement this alternative. Even more important, from a biological perspective, no new roads would be required. Construction of new roads would usually have a far greater impact on vegetation and wildlife, on wetlands, and to T&E species, than would the relatively small "footprint" of the site itself. Since no new roads, utilities, or modifications to the existing footprint of the facility would be required, minimal impacts to vegetation or wildlife would be anticipated; nor would there likely be any impact to floodplains, wetlands, or T&E species. If the tower heights were increased or new towers constructed at existing sites (especially towers higher than 200 feet), impacts to migratory bird species would occur, due to birds colliding with the towers. Mitigation measures provided in Section 4.2.7.4 below could be implemented to avoid or minimize impacts to migratory species.

4.2.7.3 Alternative C - Modernize the NDRS by Deploying New Communications Technology to a Leased Commercial Tower Site

Because this alternative only involves leasing space on an existing commercial antenna tower, only the installation of the NDRSMP equipment would be required. As such, no new impacts to biological resources are anticipated. No mitigation as a result of the

NDRSMP is required. This alternative is compatible with the USFWS preference that new communications equipment be co-located with existing towers wherever possible, to minimize impacts to migratory species that occur with new construction or tower modification to increase height.

4.2.7.4 Alternative D - Modernize the NDRS by Deploying New Communications Technology to a New Undeveloped Site

Under alternative D, new sites would be selected to build and install the NDRS communications towers and antenna. Implementation of this alternative would require the construction of a new communications tower and ancillary equipment. The amount of land required for a new site would vary depending upon the location. (For example, if a new site is located in an area that has the necessary utility infrastructure in place as well as readily accessible roadways, the amount of land required may be limited to the site itself which is estimated to be approximately 50 feet by 50 feet.) In areas where new roads must be constructed and utilities installed, the amount of land that could potentially be subtracted from available biological resources would be more substantial.

Impacts due to constructing new antenna tower sites would depend upon the types of resources displaced by the new sites. Although these impacts can only be determined on a site-specific basis, following is a brief discussion of impacts that could occur.

For each new and undeveloped site, it is assumed that a 2-mile access road and an 0.2-acre tower site would be required. The construction of a new road and antenna tower site in an undeveloped area could have biological impacts due to removal of vegetation and disturbance of natural areas.

Short term biological impacts from Alternative D

Vegetation and Wildlife—Short term impacts to vegetation and wildlife would occur during the land clearing for tower sites and access roads when the presence of workers and noise from heavy equipment would temporarily disturb the nesting and mating of birds and wildlife. Runoff from unpaved roads and cleared lands could contaminate streams and adversely affect aquatic wildlife. Dust and fumes from heavy equipment could have a minor effect on wildlife as well. Mitigation includes careful planning and site selection for undeveloped sites to minimize the length of the access roads and their widths as well. Use of hay bales and silt fences can reduce runoff until vegetation is restored along disturbed surfaces.

T&E Species—Individual tower and access road sites would be reviewed to determine the potential for any federally listed species or its habitat to occur. The USCG would work with USFWS and/or NMFS to avoid or minimize any impacts to listed species. In many cases, construction can be timed to minimize disturbance to a protected species (outside of the growing season for plants or outside of the nesting, mating, or spawning season for wildlife and fish).

Wetlands—To the maximum extent possible, project sites would be located out of wetland areas. Due to the water-dependent nature of USCG locations, however, it is

possible that some towers and/or access roads would need to be constructed in wetlands. If a tower site or access road is proposed to be located in a wetland area, USACE and State permits would be required to determine the extent of temporary or permanent wetland impacts and mitigation required. There are several Nationwide Permits (NWP) for activities in waters of the U.S. that may cover specific aspects of the development of the proposed facilities. For example, NWP 3 (Maintenance) could apply to activities related to the repair, rehabilitation, or replacement of an existing tower; NWP 12 (Utility Line Activities) or 12 (Linear Transportation Projects) could apply to the construction of access roads for new tower sites; NWP 18 (Minor Discharges) or 19 (Minor Dredging) could apply to many sites where wetland impacts are minimal. Short term effects on wetlands include contamination from runoff occurring on upland areas where land disturbance occurs. The mitigation measures used to avoid runoff would address this impact, as well as any special conditions as required by the USACE permit.

Long term biological impacts from Alternative D

Migratory birds—The long-term impacts to migratory birds from the construction of new towers are potentially significant. These impacts and the extensive set of mitigation measures that have been recommended by USFWS are discussed below.

The USFWS Division of Migratory Bird Management has issued interim guidelines for reducing impacts from towers on migratory birds (USFWS, 2000). According to USFWS, the construction of new radio, television, cellular, and microwave towers is estimated to kill between four and five million birds annually and poses especially significant impacts to the approximately 350 species of night-migrating birds. Research is underway to provide more specific data on the effects of these towers and to provide specific mitigation measures to avoid bird strikes on towers. The interim guidelines from USFWS related to towers will be implemented, to the maximum extent practicable by the USCG, on a site-specific basis for new towers constructed under the NDRSMP. The USCG is currently coordinating with the USFWS to develop an MOU for the NDRSMP, incorporating the guidelines noted below. The USCG will use to the maximum extent practicable these interim guidelines for reducing impacts from towers on migratory birds.

1. Any company/applicant/licensee proposing to construct a new communications tower should be strongly encouraged to collocate the communications equipment on an existing communication tower or other structure (*e.g.*, billboard, water tower, or building mount). Depending on tower load factors, from 6 to 10 providers may collocate on an existing tower.

2. If collocation is not feasible and a new tower or towers are to be constructed, communications service providers should be strongly encouraged to construct towers no more than 199 feet above ground level (AGL), using construction techniques which do not require guy wires (*e.g.*, use a lattice structure, monopole, etc.). Such towers should be unlighted if Federal Aviation Administration regulations permit.

3. If taller (>199 feet AGL) towers requiring lights for aviation safety must be constructed, the minimum amount of pilot warning and obstruction avoidance

lighting required by the FAA should be used. Unless otherwise required by the FAA, only white (preferable) or red strobe lights should be used at night, and these should be the minimum number, minimum intensity, and minimum number of flashes per minute (longest duration between flashes) allowable by the FAA. The use of solid red or pulsating red warning lights at night should be avoided. Current research indicates that solid or pulsating (beacon) red lights attract night-migrating birds at a much higher rate than white strobe lights. Red strobe lights have not yet been studied.

4. Tower designs using guy wires for support which are proposed to be located in known raptor or waterbird concentration areas or daily movement routes, or in major diurnal migratory bird movement routes or stopover sites, should have daytime visual markers on the wires to prevent collisions by these diurnally moving species. (For guidance on markers, see *Avian Power Line Interaction Committee (APLIC). 1994. Mitigating Bird Collisions with Power Lines: The State of the Art in 1994. Edison Electric Institute, Washington, D.C., 78 pp.*, and *Avian Power Line Interaction Committee (APLIC). 1996. Suggested Practices for Raptor Protection on Power Lines. Edison Electric Institute/Raptor Research Foundation, Washington, D.C., 128 pp.* Copies can be obtained via the Internet at http://www.eei.org/resources/pubcat/enviro/, or by calling 1-800/334-5453).

5. Towers and appendant facilities should be sited, designed and constructed so as to avoid or minimize habitat loss within and adjacent to the tower "footprint". However, a larger tower footprint is preferable to the use of guy wires in construction. Road access and fencing should be minimized to reduce or prevent habitat fragmentation and disturbance, and to reduce above ground obstacles to birds in flight.

6. If significant numbers of breeding, feeding, or roosting birds are known to habitually use the proposed tower construction area, relocation to an alternate site should be recommended. If this is not an option, seasonal restrictions on construction may be advisable in order to avoid disturbance during periods of high bird activity.

7. In order to reduce the number of towers needed in the future, providers should be encouraged to design new towers structurally and electrically to accommodate the applicant/licensee's antennas and comparable antennas for at least two additional users (minimum of three users for each tower structure), unless this design would require the addition of lights or guy wires to an otherwise unlighted and/or unguyed tower.

8. Security lighting for on-ground facilities and equipment should be down-shielded to keep light within the boundaries of the site.

9. Towers no longer in use or determined to be obsolete should be removed within 12 months of cessation of use.

Vegetation and Wildlife—The primary impacts to vegetation and non-avian wildlife from the proposed action result from the potential destruction and fragmentation of habitat resulting from the construction and maintenance of a new antenna tower on an

undeveloped site and especially the construction of an access road. Each site would need to be assessed to determine what habitats are present and how the design of the antenna tower site and road could minimize habitat loss and fragmentation. Potential impacts to vegetation, wildlife, and T&E species from invasive exotic plants that tend to colonize disturbed areas could be minimized by revegetating disturbed areas with native vegetation.

Mitigation should focus on efforts to reduce the length and width of any access road. Unless the road is to serve other users, a single lane road would have less long-term effect than a 2-lane road, due to the narrower path of disturbance required. Obviously, if a new site could be accessed by boat for maintenance, this would avoid the need for a new road and would be preferable in all circumstances, except where the infrastructure for a boat landing would have more impact than a road. In highly sensitive and currently roadless areas not accessible by boats, the USCG would consider the tradeoffs of adding a heliport pad or requiring foot access only for the occasional maintenance visits required by the system.

For addressing Section 4(f) requirements, the USCG will coordinate with Federal agencies owning or administering Section 4(f) lands when developing a mitigation plan to address the taking of land adjacent to or part of a wildlife refuge.

T&E Species— Each proposed new site would require review by USFWS to determine the potential for a listed species to be affected by a new tower and access road. The USCG will conduct informal Section 7 consultation by requesting USFWS review of potential sites. If there is the potential for a listed species or its habitat to be affected by the construction project, the USCG may be able to avoid impacts by instituting time-of-year restrictions on construction activities, altering site design, or selecting an alternative site. If an impact to a listed species would occur, the USCG will enter into formal Section 7 consultation and prepare a Biological Assessment for the new construction project.

Wetlands—The construction of the tower sites and access roads could affect wetlands directly through dredging and filling associated with construction or indirectly through runoff into the wetlands. Dredging and filling of wetlands destroys habitats of species dependent upon conditions found only in wetlands. Wetlands have been found to act as biological water treatment "plants" through filtering and conversion of polluted waters from industrial, domestic, or agricultural discharges. As discussed in Section 3.2.7.1 site specific regulatory programs to avoid impacts to wetlands exist under Section 404 of the CWA and EO 11990, Wetland Protection. Mitigation measures include avoidance, minimization, and compensation of impacts by requiring a consideration of alternatives to dredge and fill operations in wetlands; and enhancement, preservation, or creation of wetlands to offset the damage done through the proposed action. Each project site would also be evaluated for potential impacts to navigable waters; if avoidance is not possible, a permit under Section 10 of the Rivers and Harbors Act of 1899 would be required.

Floodplains – As noted in Section 4.2.4.2, Federal agencies must consider direct and indirect impacts to floodplains that may result from Federally funded actions. All

proposed actions by the USCG must comply with EO 11988, Floodplain Management, and DOT Order 5650.2, Floodplain Management and Protection. These orders require that agencies avoid construction in the base floodplain unless it is the only practicable alternative. Any part of a project that is located in a base floodplain is considered encroachment, however, COMDINST M16475.1D states that piers, pilings, or pile bents that are located in the floodplain are not considered encroachment. Any encroachment will be evaluated as to its significance. If no practical alternative exists to construction in a floodplain, the project must be designed to minimize potential harm to or within the floodplain. The design must meet three criteria: reduce the hazard and risk of flood loss; minimize the impact of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial floodplain values. Construction modification, including increasing antenna height, and construction of new antenna towers located within a Federally or locally designated floodplain are subject to permits issued by local authorities and based on State and Federal regulations.

4.2.8 Cultural Resources

Through Section 106 of the NHPA, Federal agencies are required to consider what effect, if any, the undertakings that they propose will have on historic properties. Section 4(f) of the Department of Transportation Act of 1966 requires agencies that are part of the U.S. DOT to undertake a project involving the use of historic property only when it has been determined that there is no prudent and feasible alternative to the use, and to undertake all possible planning to minimize harm resulting from such a use. By contrast, NEPA requires that federal agencies determine whether its proposed actions will have a significant impact to the environments including historic properties.

While certain undertakings may result in adverse effects to historic properties, these actions do not necessarily result in a significant impact to the environment. In general, an impact could be considered significant to cultural and/or historic resources if project activities result in:

- Destruction or alteration of all or a contributing part of any NRHP eligible cultural or historic site without mitigation of the adverse effect through prior consultation with the SHPO/THPO
- Isolation of an eligible cultural resource from its surrounding environment
- Introduction of visual, audible, or atmospheric elements that are out of character with a NRHP eligible site or would alter its setting,
- Neglect and subsequent deterioration of a NRHP eligible site, and
- Disturbance of important sites of religious or cultural significance to Native Americans.

Section 4(f) states that the Secretary of Transportation shall not approve any program or project which requires the use of any land from an historic site unless (1) there is no

feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm resulting from such use to such historic site. In terms of assessing whether a significant impact exists in cases where a project must undergo review through both Section 4(f) and NEPA, impacts would be considered significant if the project required the use of land from an historic site.

4.2.8.1 Alternative A - No Action

Impacts to Archaeological Resources

Under the no-action alternative, no activity would be performed. Therefore no impacts or effects to archaeological resources are anticipated. No mitigation is warranted.

Impacts to Historic Buildings and Structures

Because it would not involve any changes to the current NDRS facilities, the no action alternative would have no potential to affect historic buildings and structures. No mitigation is warranted.

4.2.8.2 Alternative B - Modernize the NDRS by Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS

Impacts to Archaeological Resources

Depending upon the scale of modification required to modernize these sites, archaeological resources may be affected if deployment of new technology involves a significant level of ground disturbance. Proposed activities at each facility will be reviewed for the potential for ground disturbance in previously undisturbed areas. Coordination with the respective SHPO and/or THPO would be completed as part of the site-specific tiered analysis prior to any modernization activities that involves new ground disturbance.

Impacts to Historic Buildings and Structures

Because it could involve construction activities, Alternative B has the potential to affect historic buildings and structures. While these buildings and structures may not be owned or managed by the USCG, historic buildings may be present within the APE surrounding an existing site already owned or leased by the USCG. For example, the existing site may be within the viewshed of a historic neighborhood that was listed in the NRHP since the time that the USCG initially leased the site of the proposed NDRS improvements. In such a case, the construction of a new or larger radio antenna would likely have the potential to visually affect the historic district and its setting. The construction of tall vertical structures such as radio antennas may result in visual effects to historic buildings and structures when such antennas are constructed in areas where no physical features taller than mature trees and low-rise architecture are currently present. In such instances, the construction of the antenna would result in the introduction of an element not already

present in the setting of historic properties. Therefore, the degree to which the antenna would have a visual affect on historic buildings and structures would necessarily depend upon the height of the antenna in relation to surrounding historic buildings and structures. The effect on historic properties would also depend upon other existing factors including topography, vegetation, and existing visual clutter. Conversely, the construction of a new or larger radio antenna could have an effect to buildings and structures on a USCG-owned or managed property through physical changes to any historic buildings and structures present on the USCG property as well as through the introduction of visual elements not already present in the setting of the USCG property. If avoiding such adverse effects is not possible, the USCG would begin the consultation process outlined above with the SHPO/THPO, Indian Tribes or Native Hawaiians, the ACHP, local governments, the public, and other interested parties on ways to mitigate the adverse effect. While the proposed radio antenna's effect —either visual effect or direct physical changes—has the potential to be adverse, it would be possible to mitigate this effect should no alternatives exist to avoid the adverse effect. Furthermore, through successful completion of the Section 106 process including consultation resulting in a fully ratified MOA, the USCG could determine that the proposed project would have no significant impact for the purposes of NEPA compliance under Alternative B.

4.2.8.3 Alternative C - Modernize the NDRS by Deploying New Communications Technology to a Leased Commercial Tower Site

Impacts to Archaeological Resources

Because only NDRSMP equipment would be installed on an existing antenna tower, no ground disturbing activities are anticipated. Therefore, no impacts to archaeological resources are anticipated. No mitigation is warranted.

Impacts to Historic Buildings and Structures

Because only NDRSMP equipment would be installed on an existing antenna, no ground disturbing activities or increases in antenna tower height are anticipated. As with Alternative B, the addition of an antenna would result in the introduction of an element not already present in the setting of historic properties. However, because antennas currently exist on these towers, less than significant impacts to historic buildings or structures from a change in visual setting are anticipated. Therefore, less than significant impacts to historical resources are anticipated. No mitigation is warranted.

4.2.8.4 Alternative D - Modernize the NDRS by Deploying New Communications Technology to a New Undeveloped Site

Impacts to Archaeological Resources

Under this alternative, archaeological resources may be adversely affected by the deployment of new communications technology to undeveloped sites. Archaeological

resources may be affected by ground-disturbing activities associated with the construction of and establishment of new sites.

Prior to determining the effects of the proposed undertaking to construct new antenna towers, the USCG would conduct a pedestrian survey at each of the proposed undeveloped sites to assess the potential for undisturbed archeological deposits to exist. In addition, the USCG would also need to conduct a files search at the appropriate SHPO offices to determine if any proposed new antenna tower sites would be located at or nearby a previously recorded archeological site. If a proposed new antenna tower site is deemed, in coordination with the appropriate SHPO and/or THPO, to have a high likelihood of containing archeological resources then it would be necessary for the USCG to conduct an archeological survey covering all areas that would be impacted by ground-disturbing activities. Any identified archeological remains would need to be evaluated for integrity and eligibility for listing in the NRHP. In the event that any of the proposed NDRSMP sites are determined to have an adverse effect to archaeological resources, the USCG would also need to seek ways to avoid, minimize, or mitigate the adverse effect in consultation with the appropriate SHPO and/or THPO.

Impacts to Historic Buildings and Structures

Because it would involve construction activities, Alternative D has the potential to affect historic buildings and structures. Similar to Alternative B, this scenario would have the potential to visually affect historic buildings and structures that would be present within the APE surrounding the new site to be constructed. However, Alternative D has less potential to have direct physical effects to historic buildings and structures through the construction of a radio antenna on an undeveloped site. For example, if the proposed site has never been developed and has always been open space or a heavily vegetated site, no historic buildings or structures are likely to be present. At the same time, the construction of a radio antenna on an undeveloped site may still have the potential to have a visual effect to historic properties if any are located in the area surrounding the proposed radio antenna site. In cases where a finding is made that the proposed radio antenna will have an adverse visual effect, the USCG would consider ways to avoid or minimize the adverse visual effect. If avoiding the adverse visual effect is not possible, the USCG would begin the consultation process outlined above on ways to mitigate the adverse visual effect. While a proposed radio antenna's visual effect has the potential to be adverse, it would be possible to mitigate the effect should no alternatives exist to avoid it. Furthermore, through successful completion of the Section 106 process including consultation resulting in a fully ratified MOA, the USCG could determine that the proposed project would have no significant impact for the purposes of NEPA compliance under Alternative D.

4.2.9 Recreation

Impacts potentially affecting recreational resources are considered to be those that would result in the reduction or elimination of physical space used for recreational purposes. Other impacts, such as noise, aesthetic intrusions, increased population and resource use,

that can affect the enjoyment and safety of a recreational experience are addressed in Sections 4.2.1, 4.2.10, and 4.2.12 of this document.

The significance criteria developed to evaluate the impacts of the proposed project on recreational resources are based on the degree to which recreational space could be reduced by the proposed action. These criteria are as follows:

- No impact would occur if the area of land available for recreational purposes is unchanged
- Significant impact would occur if the area of land available for recreational purposes would be reduced

Significance criteria that focus on the loss of recreational space are consistent with Section 4(f) of the Department of Transportation Act of 1966 which states that any DOT action requiring the use of public park and recreation lands will only be approved if:

1. There is no feasible or prudent alternative to using that land, and
2. The action includes all possible planning to minimize harm resulting from use.

The impact discussion below summarizes the applicability of Section 4(f) to each of the four proposed project alternatives and identifies mitigation measures where appropriate.

4.2.9.1 Alternative A - No Action

The No-Action Alternative would not result in any impacts to recreational resources because no action would be taken. Under this alternative there would be no reduction of space available for recreation. However, if the NDRS is not modernized, there could be an indirect effect on safety because the numerous deficiencies in the current system would not be corrected (see Section 1.3). Equipment non-availability, existing coverage gaps, and inadequate channel capacity would continue to contribute to degraded command and control and unanswered calls for assistance. The system's inability to determine the location of distressed vessels or hoax callers would result in lost lives and wasted resources.

4.2.9.2 Alternative B - Modernize the NDRS by Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS

Under Alternative B, existing sites would be used to deploy the NDRSMP. Although the extent of renovations required to implement Alternative B would vary depending upon the suitability of the existing site and the extent of modifications needed, no additional land would be required to implement this alternative. Since the area of land available for recreational purposes would be unaffected, Alternative B would have no impact on recreational resources and no mitigation is warranted. However, using this alternative

alone would not eliminate all coverage gaps; therefore unanswered calls for assistance would continue to occur.

4.2.9.3 Alternative C - Modernize the NDRS by Deploying New Communications Technology to a Leased Commercial Tower Site

No additional land area would be required to implement Alternative C. Therefore, the area of land available for recreational resources is unchanged, there is no impact on recreational resources, and no mitigation is warranted. However, using this alternative alone would not eliminate all coverage gaps; therefore unanswered calls for assistance would continue to occur.

4.2.9.4 Alternative D - Modernize the NDRS by Deploying New Communications Technology to a New Undeveloped Site

Under Alternative D, new undeveloped sites would be selected to install the NDRS antenna towers. Implementation of this alternative would require the construction of a new antenna tower and ancillary equipment. The amount of land required for a new site would vary depending upon the location. For example, if a new site is located in an area that has the necessary utility infrastructure in place as well as readily accessible roadways, the amount of land required would be limited to the site itself which is estimated to be approximately 0.2 acre. In areas where new roads must be constructed and utilities installed, the amount of land that would potentially be subtracted from available recreational use would be more substantial. A new access road could be up to 2 miles or more in length and could constitute a greater impact than the tower site itself.

In all scenarios under Alternative D, land would be required to deploy the NDRSMP. If the land on which the new site and supporting infrastructure are constructed is not used for recreational purposes, there would be no significant impact. If, however, the site location is within a recreational area, implementation of Alternative D could result in significant impacts.

To minimize the impacts of Alternative D on recreational resources, the USCG would, to the maximum extent practicable, implement some or all of the following mitigation measures:

- To the extent siting criteria permit, avoid public parks, recreation lands, or wildlife and waterfowl refuges [i.e. Section 4(f) lands].

- To the extent siting criteria permit, avoid land adjacent to Section 4(f) lands, if the presence of a tower and infrastructure would impair the use of the Section 4(f) land for its intended purpose. Noise, air and water pollution, wildlife and habitat effects, aesthetic values, and/or other impacts would be considered in determining whether the use of recreational land has been impaired.

- Where land has been taken from a recreational area, provide an equal or greater sized strip of land with equal or greater quality to add to the area from which land was extracted.

- Provide monetary compensation to enhance the use of the remaining land available for recreational purposes.

- To the extent siting criteria permit, select an easily accessible area to eliminate the need for additional land area to construct access roads.

- To the extent siting criteria permit, minimize the footprint of the affected area.

The USCG would coordinate with Federal agencies owning or administering Section 4(f) lands when developing a mitigation plan to address the taking of land adjacent to or part of a public recreational area.

4.2.10 Visual Resources

Land uses adjacent to proposed NDRS antennas may include residential, recreational, or commercial lands that are especially sensitive to the visual impacts of newly constructed towers. Visual impacts of deployment of the NDRSMP would result from the alteration of a viewshed due to short-term construction activity and/or long-term placement of an additional or larger communications tower in an existing landscape. Measurement of visual impacts is not based on the beauty or ugliness of the proposed action, but rather on the degree to which the proposed action *contrasts* with the features of the existing landscape. The degree of contrast is determined from the most critical viewpoints, including all travel routes and reasonably accessible viewpoints from the NDRS antenna tower site.

The following visual resources significance criteria are based on Bureau of Land Management (BLM) contrast criteria and objectives for visual resource classes of public lands. Although the NDRS antenna towers may not be located on lands subject to BLM requirements, the BLM contrast criteria are widely accepted and can be used to assess impacts visual resources on non-BLM lands.

- No impact would occur if there is no change in the existing environment.

- Negligible impact would occur if the level of change from the proposed project is negligible and would generally be overlooked by an observer.

- Minimal impact would occur if the level of change is minimal and would not attract the attention of a casual observer. The change would likely only be noticed if pointed out by another observer.

- Significant impact would occur if the level of change is high, dominates the view, and demands attention of the casual observer. The change becomes the primary focus of the observer.

Although the selection of a specific alternative would not affect the type of visual resources present at a site, it would affect how the visual resources that are present at a site are impacted by the proposed project. The vulnerability of the various landscapes in which the NDRS antenna towers may be located (i.e., the amount they would be affected by the presence of an NDRS antenna tower) varies considerably. Due to the conspicuity of a tower structure in a natural environment, in general, antenna tower sites would be least compatible with a rural setting. In contrast, construction of an antenna tower in an urban setting where numerous man-made structures are present is likely to have less of an impact on the visual aesthetics of the area, unless the tower is located in an area where the pubic is opposed to such structures, such as within a residential community. A more detailed discussion of the impacts of the four alternatives on visual resources that may be present at selected sites is included below.

4.2.10.1 Alternative A - No Action

The no-action alternative would not result in any visual impacts. The visual environment at existing USCG antenna tower site locations would remain unchanged. As a result, less than significant impacts to visual resources would occur and no mitigation is warranted.

4.2.10.2 Alternative B - Modernize the NDRS by Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS

The type of activities that would be conducted to implement this alternative would vary depending upon the suitability of the existing site and the extent of modifications needed to deploy the NDRSMP. The following discussion describes the impacts to visual resources for the following three deployment scenarios under Alternative B:

1. The tower present at an existing USCG site is suitable for installing the NDRS communications antenna and meets the height requirements.

2. The tower present at an existing USCG site is suitable for installing the NDRS communications antenna, but an increase in the height of the existing tower is required.

3. The tower present at an existing USCG site is unsuitable for installing the NDRS communications antenna. The existing tower must be demolished and replaced with a tower of equal or greater height.

The primary visual impacts of the proposed action are the presence of a 300-foot antenna tower and any construction activity required to install the modernized NDRS antenna and ancillary equipment. In the first scenario described above, the only activity required to deploy the NDRSMP would be the replacement of NDRS communications antennas. Since no demolition or additional construction would be required, and the height of the existing tower would remain the same, the level of contrast with the existing visual features at and around the site created as a result of implementing the proposed action

would be negligible. Consequently, the impact to visual resources would range from no impact to minimal impact under scenario 1.

In scenario 2, the existing tower would be used to deploy the NDRSMP. However, the height of the tower would need to be increased. Although some construction activity may be required under scenario 2, the extent of the construction activity is expected to be minimal. Based on the range of current USCG tower heights, the height of the existing tower may need to be increased by anywhere from 50 to 250 feet. Given that an antenna tower is already part of the landscape at the existing site under this alternative, increasing the height is not likely to transform the existing tower such that it dominates the view and demands the attention of the casual observer. Based on the extent and duration of construction activity and the presence of an existing, albeit shorter tower, in the existing landscape, deployment of the NDRSMP under scenario 2 would have a less than significant impact on visual resources at and around the site.

The most extensive renovations required to deploy the NDRSMP under Alternative B are represented by scenario 3. Implementation of Alternative B under this scenario could require the demolition of existing communications and associated equipment and construction of a new tower and equipment. No contrast to the natural landform at or adjacent to the site is expected because the site is already developed. Construction equipment and fugitive dust from construction and demolition activities is likely. However, because of the temporary nature of these activities, they are considered less than significant from a visual perspective. The replacement tower may impact the visual aesthetics at and surrounding the site. If the replacement tower is equal in height to the original tower, there would be no additional contrast to the existing landscape. If the replacement tower is taller than the existing tower, the visual aesthetics would be impacted. However, as was the case with scenario 2, this impact would be less than significant because the increase in tower height is unlikely to transform the existing feature such that it dominates the view and demands the attention of the casual observer. Any demolition and construction activity and replacement of an existing tower under scenario 3 would not significantly impact the visual resources either at or surrounding the site. No mitigation is warranted for any of the scenarios under Alternative B.

4.2.10.3 Alternative C - Modernize the NDRS by Deploying New Communications Technology to a Leased Commercial Tower Site

Under Alternative C, the USCG would place antenna equipment on existing towers that meet the criteria for the NDRSMP. Only those sites that meet the height and location requirements would be used to implement this alternative. Consequently, no construction is expected and the height of the existing tower feature would remain the same. Since no contrast to the natural landform at or adjacent to the site is expected, the impact to visual resources under Alternative C would be less than significant and no mitigation is warranted.

4.2.10.4 Alternative D - Modernize the NDRS by Deploying New Communications Technology to a New Undeveloped Site

Construction of the NDRS antenna towers at an undeveloped site could result in several sources of visual contrast. Land uses adjacent to proposed NDRS antennas may include residential, recreational, or commercial lands that are especially sensitive to the visual impacts of newly constructed towers. In the short-term, the primary sources of visual contrast are:

1. The clearing and grading of land to build the new antenna tower and ancillary equipment (i.e., fencing, structure to house electronic equipment, and generator).

2. The construction of infrastructure necessary to install and operate the antenna tower (access roads for construction and maintenance/service crews and power lines).

3. The construction of the antenna tower and installation of ancillary equipment.

Features of the site that may create a permanent contrast with the visual elements in an undeveloped area include access roads, transmission lines, the 300-foot antenna tower, and ancillary communications equipment.

In addition to addressing the impacts of Alternative D on visual resources in both the short- and long-term, differences in nocturnal and diurnal impacts must be considered. The impacts to visual resources previously described are likely to be more significant during the day when the features are more visible than at night when they are hidden. In contrast, lighting installed on antenna towers to prevent aircraft from hitting the towers in the dark may pose a visual distraction after sundown.

To minimize the short- and long-term impacts of Alternative D on the visual aesthetics of an undeveloped area, the USCG would implement, to the maximum extent practicable, some or all of the following mitigation measures:

- To the extent that technical siting criteria permit, select an area already served by roads or accessible by water to avoid construction of new roads.

- Consolidate communications facilities when possible to reduce visual sprawl.

- When possible, select new site locations where the features of the antenna tower site are consistent with the topography of the area. For example, an antenna tower site located in a forest would have less of a visual impact than one located in a large meadow or field. Similarly, a tower located in a city with a relatively high skyline and existing radio, television, and antenna towers is less likely to impact the visual aesthetics of the area than a tower located near a residential area with underground utilities.

- Implement design features that compliment the existing landscape. For example, access roads can be designed to repeat the forms and lines found in the existing landscape.
- Minimize the footprint of the affected area.
- Paint concrete foundations with an earth-tone paint or stain to reduce contrast.
- Restore and landscape disturbed areas.
- Screen fences and structures housing operational equipment using fast-growing native shrubs to shorten the length of time until vegetative screening can reduce the visual intrusion of the equipment.
- Use rustic designs and native building material.
- Select an area where existing navigation safety lighting, or lighthouse lighting is already present in the area or nighttime aviation is prohibited and safety lighting would not be required.

4.2.11 Socioeconomic Resources

Beneficial social and economic effects would be considered significant if they resulted in a measurable increase in annualized rates of employment, personal income, or business activity either nationally or within the local economies of proposed project sites. Adverse effects from actions like the proposed project typically result from boom/bust economic cycles and temporary increased demand for "lumpy" goods and services beyond existing capacity. Lumpy goods and services are social resources such as schools that have finite capacity and incremental investments cannot be made to serve increased demand. Also, property owners often perceive that antenna towers potentially reduce the desirability of properties and to adversely affect property values.

4.2.11.1 Alternative A - No Action

Under Alternative A, no existing owned or leased sites would be upgraded and no new sites would be constructed. There would be no change to social and economic resources when compared to existing conditions. No mitigation is warranted.

4.2.11.2 Alternative B - Modernize the NDRS by Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS

Substantial beneficial financial investment for labor and equipment would be required to implement Alternative B nationally. However, these investments would not have a measurable effect on the national economy and would therefore not be considered significant. The most tangible beneficial effects would be better communications and

improved effectiveness of search and rescue operations. This would result in improved public safety and possibly reduced loss of human life.

Under Alternatives B, local equipment would be purchased and local labor would be used to the greatest extent practicable to upgrade existing tower sites. This would result in both direct and indirect spending in the local communities. The amount of funds introduced into the local economies during the equipment upgrade phase would be limited in amount and limited in duration. Ongoing expenses for operation and maintenance would be minor. The beneficial local economic effects would therefore not be significant.

Adverse social and economic effects would not be expected due to the small number of workers required in any single local area. The proposed action would not be expected to have effects that would lead to disproportionately high health risks or safety risks to children, although caution should be taken to secure sites so that children cannot enter them. In addition, recent studies reveal that property values adjacent to or in the vicinity of antenna sites have not depreciated relative to real estate values in the general area (WTR 1997). However, concerns over diminished property values should be anticipated from local property owners. As a general rule, mitigation measures would not be required due to the expected minor level of effects. However, the need for mitigation should be evaluated on a case by case basis and could be necessary in certain situations, for example where sites are in close proximity to playgrounds or locations where children gather to play with limited supervision. In these cases, security reviews and additional signage could be used to mitigate chances of health and safety risks to children. Enhanced landscaping or aligning sites in a manner that minimizes impairment of visual quality to homes and businesses could be used to mitigate property value concerns if they are raised.

4.2.11.3 Alternative C - Modernize the NDRS by Deploying New Communications Technology to a Leased Commercial Tower Site

For social and economic resources, Alternative C would have similar effects and mitigation to those described above for Alternative B.

4.2.11.4 Alternative D - Modernize the NDRS by Deploying New Communications Technology to a New Undeveloped Site

Beneficial effects under Alternative D would be similar in nature to those described for Alternatives B and C. However, the cost of developing a new site is greater that the cost of upgrading existing sites, so direct and indirect expenditures in local communities would be greater under Alternative D than under Alternatives B or C. However, the temporary construction-related expenditures and the longer-term and operations-and-maintenance-related expenditures would still not be expected to cause measurable changes in the key economic indicators of local communities. Alternative D would also result in greater benefits to communications for search and rescue operations by eliminating existing coverage gaps. As stated above, property values adjacent to or in the

vicinity of antenna sites have generally not depreciated relative to real estate values in the general area (WTR 1997). However, concerns over diminished property values should be anticipated from local property owners. Enhanced landscaping or aligning sites in a manner that minimizes impairment of visual quality to homes and businesses could be used to mitigate property value concerns if they are raised. Mitigation measures related to health and safety risks to children post construction would be similar to those suggested for Alternatives C and D. Proper construction site security and management practices should minimize risks to children during new site construction.

4.2.12 Land Use

Impacts to land use would be considered to be significant if activities under the proposed or alternative action resulted in a major change in land use.

4.2.12.1 Alternative A - No Action

Under the No Action Alternative, the NDRS would not be modernized. As such, the no action alternative is not anticipated to affect land use, CZM areas, CBRS units, prime or unique farmlands, or Section 4(f) lands. No mitigation is warranted.

4.2.12.2 Alternative B - Modernize the NDRS by Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS

In general, any noticeable changes to land use as a result of the initial installation of NDRS-related equipment would have already occurred prior to the implementation of upgrade scenarios proposed under this alternative. USCG-owned property is exempt from local zoning. In some cases, increasing the tower height, replacing equipment and/or the addition of new communications equipment may require local or regional permits. During preparation of the site-specific tiered analyses, the USCG would consider whether project activities are in compliance with the current local and regional land use ordinances. In general, this alternative is anticipated to have a negligible effect on land use. To comply with local ordinances, USCG may be required to implement project-specific mitigation measures, such as painting, or architectural elements.

No new potential impacts to CZM areas, CBRS units, prime or unique farmlands, or Section 4(f) lands are expected as the bulk of NDRS-infrastructure would already be in place, and the necessary consultation with respect to special status lands would have been completed. To further ensure that project activities would not affect these special status lands, the USCG will consider whether project activities are in compliance with the applicable Federal regulations and its own guidance.

4.2.12.3 Alternative C - Modernize the NDRS by Deploying New Communications Technology to a Leased Commercial Tower Site

Under this alternative, impacts to land use and special status lands would be similar to those described under Alternative B. In general, impacts are expected to be negligible. Mitigation measures would be similar to those described under Alternative B.

4.2.12.4 Alternative D - Modernize the NDRS by Deploying New Communications Technology to a New Undeveloped Site

The effects of Alternative D on land use would depend on site-specific characteristics. Land use would change on undeveloped sites that are not located on Federal property. In the case of previously undisturbed land supporting native vegetation including wetlands, the land use would result in a noticeable change. In more developed, urban areas, the installation of a NDRS antenna may result in relatively negligible impacts to land use. In either case, the construction of NDRS would typically require a construction permit from local authorities prior to construction. Conditions of the permit would normally specify that the antenna be constructed and operate in compliance with local zoning ordinances, or that a zoning variance be obtained. Given the small footprint of the proposed projects (0.2 acre), substantial changes to land use are not anticipated to occur under this alternative.

Land uses adjacent to proposed NDRS antennas may include residential, recreational, or commercial lands that are especially sensitive to the visual impacts of newly constructed towers. The construction of NDRS infrastructure is not anticipated to have any impacts on population growth within the subject area.

In accordance with CZMA and COMDTINST M16475.1D, USCG is required to carry out the proposed project in accordance with a State's approved CZM plan if the project site is located with a designated CZM area. Depending on State requirements, the installation of a new antenna would require a consistency determination to ensure that project activities would be consistent with the CZM plan. Final approval of this alternative may not take place sooner than 90 days from issuance of the consistency determination unless the state/territory concurs, concurrence is presumed, or the state/territory agrees to an alternative period per 15 CFR Part 930.41 (c). The site-specific tiered analysis would include a statement that indicates whether a proposed project is within, or affects, the coastal zone resources of a state/territory, and where appropriate, whether it is consistent, to the maximum extent practicable with the CZM plan. Site-specific tiered analysis would include site-specific mitigation measures, as appropriate.

In light of the fact that this alternative may include acquisition of land within the CBRS system, the USCG would be required to consider the impacts of project activities on CBRS and contact the USFWS. Where possible, USCG would consider siting antennas in alternate locations outside of the CBRS.

If a proposed project is determined to impact farmlands, USCG will make a request to the NRCS through the Farmland Conversion Impact Rating Form (AD 1006), for determination of whether the site is subject to FPPA. The site-specific tiered analysis would contain mitigation measures, as determined by consultation with NRCS, for minimizing impacts to prime or unique farmlands.

An analysis and finding would be required to determine if there is use of a Section 4(f) property. If the proposed project is planned for Section 4(f) lands or would impact these lands, the USCG will be required to prepare a Section 4(f) evaluation. Based on this 4(f) evaluation, a 4(f) determination would be prepared for signature by the responsible USCG authority.

4.2.13 Environmental Justice

The DOT order [Federal Register: April 15, 1997 (Volume 62, Number 72)] on environmental justice was considered during development of the significance criteria for this resource concern (DOT 1997).

Impacts to minority populations or low-income populations resulting from the proposed action would be considered significant if any of the criteria were applicable to the proposed projects:

- Significant impacts for any evaluated resource areas occur disproportionately within census block groups having minority populations or low-income populations that are either 50 percent or greater of the total population or 10 percentage points greater than the average for the State;
- New sites are developed disproportionately in census block groups having minority populations or low-income populations that are either 50 percent or greater of the total population or 10 percentage points greater than the average for the State, regardless of whether significant impacts are anticipated for other resource areas; or
- New sites are disproportionately located within close proximity to minority communities or low-income communities, regardless of the minority or low-income percentages of the block groups.

The primary concern is degraded visual aesthetics of minority or low-income residences or public gathering places, such as schools, churches, and community centers. As a general rule, the visual impairment rules that apply to historic places can be used to evaluate visual impairment to minority communities and low-income communities.

4.2.13.1 Alternative A - No Action

Under Alternative A, no existing owned or leased sites would be upgraded and no new sites would be constructed. There would be no potential for this alternative to have disproportionately high and adverse effects on minority populations or low-income populations. Therefore, no mitigation is warranted.

4.2.13.2 Alternative B - Modernize the NDRS by Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS

The potential for disproportionately high and adverse effects to minority populations and low-income populations is based primarily on the demographic characteristics of the communities near proposed project sites. The potential for effects must be evaluated on a site-by-site and a system-wide basis.

Except in situations where a tower site is located very near a minority or low-income community or a public gathering place used by those communities, off-site impacts would be of greatest concern. Raising the height of existing antenna towers may increase existing concerns with visual quality. In either case, mitigation measures would be considered where appropriate. Effective mitigation measures would include enhanced landscaping of tower sites or impaired locations. If landscaping to minimize visual impairment is not feasible, mitigation may involve working with local representatives to define and implement an offsetting community improvement project.

4.2.13.3 Alternative C - Modernize the NDRS by Deploying New Communications Technology to a Leased Commercial Tower Site

The impacts and potential mitigation measures under this alternative would be the same as those described for Alternative B.

4.2.13.4 Alternative D - Modernize the NDRS by Deploying New Communications Technology to a New Undeveloped Site

There is a greater potential for off-site impacts under Alternative D compared to Alternatives B and C, and therefore a greater potential for disproportionately high and adverse effects to minority populations or low-income populations. Each site would therefore be evaluated using the significance criteria identified above, and mitigation measures would be considered where appropriate. The potential for new sites to degrade the visual aesthetics of minority or low-income communities and public gathering places would be considered. For new sites, the temporary nuisances caused by construction activities would also be considered.

Identified mitigation measures include utilizing minority or historically underutilized contractors, routing roads for new construction so that they are beneficial to the affected communities, and compensating local communities through strategies such as leasing land for new sites from minority or low-income land owners when possible. Generally speaking, mitigation measures would be directed toward minimizing adverse effects, or toward ensuring minority populations and low-income populations obtain a proportionate share of project benefits when adverse effects are unavoidable. Effective mitigation measures would include enhanced landscaping or aligning sites in a manner that minimizes impairment of visual quality to homes and gathering places. Mitigation could

involve working with local representatives to define and implement an offsetting community improvement project.

4.2.14 Cumulative Effects

NEPA requires an analysis of the incremental effects of an action that are cumulatively considered when viewed in connection with other closely related recent past, present, planned, and reasonably foreseeable future actions. The contribution of a proposed action to the overall cumulative impacts in the region is of particular concern. In general, effects of a particular action or group of actions must meet the following criteria to be considered cumulative impacts:

- Effects of several actions occur in a common locale or region.
- Effects are not localized (i.e., can contribute to effects of an action in a different location).
- Effects on a particular resource are similar in nature (i.e., affects the same specific element of a resource).
- Effects are long-term; short-term impacts dissipate over time and cease to contribute to cumulative impacts.

It is anticipated that implementation of future actions, could in conjunction with other recent past, present, planned, and reasonably foreseeable projects, result in cumulative impacts to one or more of the environmental resources discussed in this SPEA. Subsequent tiered environmental analysis would address cumulative impacts at a site-specific level. The following is a discussion of some other relevant USCG programs.

Nationwide Differential Global Positioning System (DGPS). The USCG, in cooperation with several Federal agencies, has been delegated authority to implement and operate the Nationwide DGPS. This project, through a Memorandum of Agreement between the USCG, U.S. Air Force, USACE, Federal Railroad Administration, Federal Highways Administration, National Oceanic and Atmospheric Administration, and the Office of the Secretary of Transportation, seeks to make maximum use of existing infrastructure within these agencies in the establishment of this nationwide radio navigation service. The system would incorporate existing USCG and USACE DGPS sites, along with the installation of 65 to 75 new sites throughout the U.S. to cover areas not currently covered by the USCG Maritime DGPS service. This project is anticipated to take four to five years to fully implement and would consist of 125 to 135 sites (existing and new).

Ports and Waterways Safety Systems (PAWSS). The PAWSS is a component of the USCG SRCS specializing in the support of USCG missions regarding Vessel Traffic Service (VTS). Similar to NDRSMP, the USCG plans to add several new capabilities to PAWSS which could include the installation of radar, VHF-FM radios, and telephone lines at both existing and new sites. Presently, several VTS and NDRS sites are co-located; and under the proposed actions, new sites for both systems could also be co-

located. The PAWSS upgrade is currently only authorized for the Port of New Orleans and contemplates adding VHF-FM radios at existing communication sites for the Port.

Deepwater Program. Many of the Coast Guard's most critical missions – countering terrorist threats, rescuing mariners in distress, catching drug smugglers, stopping illegal migrants, and protecting the marine environment – demand forces that are able to operate effectively across a broad geographic spectrum, from overseas operating areas to U.S. Exclusive Economic Zone, coastal, and port regions. The Coast Guard's Deepwater cutters and aircraft are designed to operate throughout these diverse environments. They comprise the first line of the Service's layered defense against threats to America's homeland and maritime security.

Unfortunately, the Service's current Deepwater assets are aging and technologically obsolete. They lack essential speed, interoperability, sensor and communication capabilities, which in turn limit their overall mission effectiveness and efficiency. To address these shortfalls, the Coast Guard established the Integrated Deepwater System Program to replace and modernize its aging force of cutters and aircraft, and their supporting command-and-control and logistics systems. These new assets, which possess common systems and technologies, common operational concepts, and a common logistics base, will give the Coast Guard a significantly improved ability to detect and identify all activities in the maritime arena, a capability known as "maritime domain awareness," as well as the improved ability to intercept and engage those activities that pose a direct threat to U.S. sovereignty and security.

The Coast Guard's Integrated Deepwater System Program will ensure that the Coast Guard – and the nation – has cutters, aircraft, and command-and-control systems that can capably defend against maritime threats far out to sea, before they can reach U.S. citizens, territory, or vital interests.

Potential for Cumulative Impacts from USCG Projects. It is the practice of the USCG to co-locate antenna sites and share telecommunications infrastructure for different systems whenever feasible; therefore, it is anticipated that the NDRSMP, DGPS, and PAWSS, and communications components of the Deepwater Program would either be integrated into existing sites or be co-located at new site in many cases. As such, it is anticipated that there would be some level of cumulative impacts at shared sites. However, because infrastructure would be shared, cumulative impacts of these USCG projects would be minimal (i.e., buildings, roads, etc would serve multiple projects). Further, site and infrastructure sharing can be seen as environmentally beneficial as compared to construction of multiple antenna sites in the same vicinity. Therefore, it is anticipated that adverse cumulative impacts resulting from these USCG projects would be minimal.

Potential for Cumulative Impacts from USCG and Other Projects. As stated above, specific sites for the NDRSMP are under investigation. Without defined sites or project locations, it is not possible to determine what other past, present, or reasonably foreseeable projects would, in conjunction with the NSDRMP, cause cumulative impacts. However, it is reasonable to assume that in many cases there would be other projects in

the same region as the new NDRS sites or existing NDRS sites to be upgraded. On a project site specific basis, the USCG would appropriately assess cumulative impacts of the applicable projects.

4.2.15 The Relationship Between Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity and Irreversible or Irretrievable Commitment of Resources

NEPA regulations require that the relationship between short-term use of the environment and the impacts of such use may have on the maintenance and enhancement of long-term productivity of the affected environment be addressed. Impacts that narrow the range of beneficial uses of the environment are of particular concern. Such impacts include the possibility that choosing one development option reduces future flexibility in pursuing other options, or that giving over a parcel of land or other resource to a certain use often eliminates the possibility of other uses being performed at the site.

It is anticipated that implementation of the proposed action would not result in any impacts that would significantly narrow the range of future beneficial uses of the environment because it would not pose any long-term risks to health, safety, or the general welfare of the public communities surrounding USCG facilities, but rather would be a benefit and alleviate long-term risks to health, safety, and general welfare.

NEPA regulations require an analysis of irreversible or irretrievable effects resulting from implementation of proposed actions. Resources that are irreversibly or irretrievably committed to a project are those that are typically used on a long-term basis that cannot be recovered. These resources are irretrievable in that they would be used for one project when they could have been used for other purposes. Another impact that falls under the category of irretrievable commitment of resources is the destruction of natural resources that could limit the range of potential uses of that particular environment.

Implementation of the NDRSMP would require commitment of non-renewable resources both for construction and long-term operation/maintenance. These resources include water, energy, lumber, sand and gravel, and metals. Use of these resources would represent an incremental effect on the regional consumption of these commodities. In addition, the NDRSMP would commit work-force time for construction, engineering, environmental review and compliance, operation and maintenance. All of these activities represent commitments of resources that could have been applied to projects other than the NDRSMP.

The following is a discussion of the irreversible and irretrievable commitments of resources by resource area:

There would be no irreversible or irretrievable commitment of resources with regard to noise, air quality, hazardous substances, recreational, resources, visual resources, socioeconomic resources (other than labor discussed above), land use, or environmental justice.

Earth Resources. Commitment of an area of land for a tower site would be permanent and would therefore result in an irretrievable commitment of earth resources. This commitment is reversible however, since the tower, fence and other structures can be removed, and the ground surface allowed to return to its previous natural state.

Water Resources. Commitment of an area of land for a USGS antenna facility would have permanent effects on water resources. However, this commitment is reversible since the tower, fence and other structures may be removed and the site restored to pre-construction natural conditions. Access roads and drainage pathways (including culverts) built for the construction and maintenance of the facility could also be restored to original conditions should the site be abandoned in the future.

Infrastructure and Utilities. Energy consumed and waste generated and disposed of as a result of implementation of this program would have permanent effects, in that consumed energy would not be replaced through operation of the facility and space used in solid waste management facilities for disposal of material associated with the project would not be reversed. Transportation and drainage-related resources changed in some way through the implementation of this project would be reversible should the site be abandoned and restored in the future.

Cultural Resources. Ground-disturbing activities associated with the deployment of the NDRS have the potential to result in irretrievable commitment of archaeological resources if present. Effects to historic buildings and structures by the implementation of this project are visual and would therefore be reversed should the site be abandoned and the tower and associated ancillary facilities and appurtenances removed.

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CHAPTER 5

LIST OF PREPARERS

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LIST OF PREPARERS

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CHAPTER 6

PERSONS AND AGENCIES CONSULTED

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PERSONS AND AGENCIES CONSULTED

The following individuals and agencies were consulted during the preparation of this EA:

FEDERAL AGENCIES

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Environmental Protection Agency
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Region 5
Region 6
Region 7
Region 8
Region 9
Region 10

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Alaska Regional Office
Northeast Region
Northwest Region
Southeast Region
Southwest Region

Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator

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Washington D.C.
11th CG District
Maintenance and Logistics Command, Pacific

U.S. Department of Agriculture
Washington, D.C.
Pacific Southwest Region
Pacific Northwest Region
Southern Region
Eastern Region
Alaska Region

U.S. Department of Agriculture, Natural Resource Conservation Service
Washington, D.C.

U.S. Department of Interior, Bureau of Land Management (BLM)
NEPA Environmental Coordinator (Arlington, VA)

U.S. Department of Interior, Fish and Wildlife Service
Region 1
Region 2
Region 3
Region 4
Region 5
Region 7

Department of Interior, Minerals Management Service
Washington, D.C.

Federal Aviation Administration, Airport Engineering and Design
Washington, D.C.

Federal Emergency Management Agency
Washington, D.C.
Region I
Region II
Region IV
Region V
Region VI
Region IX
Region X

National Park Service
Washington, D.C.
National Capital Region
Northeast Area Region
Midwest Region
Pacific West Region
Southeast Region
Intermountain Region

Alaska Area Region

U.S. Army Corps of Engineers
Washington, D.C.
North Atlantic Division
Atlantic Division
Mississippi Valley Division
Great Lakes and Ohio River Division
Southwestern Division
Northwestern Division
South Pacific Division
Pacific Ocean Division

STATE AGENCIES

Alabama Historical Commission

California State Clearing House
Office of Planning and Research

District of Columbia
Office of Partnerships and Grants Development

Florida State Clearinghouse
Department of Community Affairs

Georgia State Clearinghouse

Iowa Department of Economic Development
Division of Rural and Community Development

Maine State Planning Office

Maryland Office of Planning

Missouri Office of Administration
Federal Assistance Clearinghouse

Mississippi Department of Finance and Administration
Clearinghouse Officer

New Hampshire Office of State Planning

North Carolina Department of Administration

Rhode Island Department of Administration
Statewide Planning Program

South Carolina Office of State Budget

State Historic Preservation Officers
Alaska
California
Connecticut
Delaware
Florida
Georgia
Illinois
Indiana
Kentucky
Louisiana
Maine
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Mississippi
Missouri
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New Jersey
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Ohio
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Rhode Island
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Tennessee
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Wisconsin
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Southeast Michigan Council of Governments

Texas Governor's Office of Budget and Planning

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OTHER

Coastal America

Confederated Tribes of Colville Reservation

Confederated Tribes of Warm Springs

Confederated Tribes of the Umatilla Reservation

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Guam Bureau of Budget and Management Research

Guam Historic Preservation Office

Lac Courte Oreilles Band of Lake Superior Chippewa

Lac du Flambeau

Leech Lake Band of Chippewa Indians

Lummi Tribe

The Makah Tribe
Makah Cultural Research Center

Maritime Institute of Technology

Menominee Indian Tribe of Wisconsin

Micronesia Department of Land

Micronesia Division of History and Cultural Preservation
Historic Preservation Officer

Micronesia Office of Management and Budget

Micronesia Department of Community and Cultural Affairs

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Puerto Rico Planning Board

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Samoa Historic Preservation Officer

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Seneca-Iroquois National Museum

Skokomish Indian Tribe

Spokan Tribe of Indians

Squaxin Island Tribe

States of Micronesia Historic Preservation Officer

Timbisha Shoshone Tribe

Tunica-Biloxi Indians of Louisiana

Virgin Islands Historic Preservation Office

Virgin Islands Office of Management and Budget

Wampanoag Tribe of Gay Head (Aquinnah)

Washington Tribal Historic Preservation Officer

CHAPTER 7

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APPENDIX A

REGULATORY SETTING

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REGULATORY SETTING

The following is a summarized description of the various statutes, regulations, policies, and Memorandum of Agreement (MOA) which task the U.S. Coast Guard (USCG) with specific responsibilities related to the proposed action.

1. Statutes

a. *Title 14 U.S. Code 2.* Tasks the USCG to develop, establish, maintain, and operate facilities for the promotion of Search and Rescue (SAR), carrying out maritime safety programs, and enforcing federal laws and treaties.

b. *Title 14 U.S. Code 93.* Authorizes the USCG to maintain radio transmitting and receiving stations.

c. *Title 14 U.S. Code 141.* Authorizes the USCG to utilize its personnel and facilities to assist federal and state agencies.

d. *Title 14 U.S. Code 145.* Sets out the USCG responsibility to act as an armed Naval force. Includes the responsibility for maintaining the Maritime Defense Zones (MDZ). In war, or when the MDZs are activated, the USCG MDZ commanders have responsibility for port security and coastal defense within 200 miles offshore.

e. *Title 14 U.S. Code 147.* Authorizes the USCG to cooperate with the National Oceanic and Atmospheric Administration (NOAA) by procuring and maintaining communications facilities and disseminating weather information.

f. *Title 33 U.S. Code 1201-1208 (The Bridge-to-Bridge Radiotelephone Act).* Provides for certain operators of vessels within navigable waters to communicate their intentions to one another through voice radio. The USCG and Federal Communications Commission (FCC) have designated VHF-FM Channel 13 (156.65 MHz) and Channel 67 (156.375 MHz) as bridge-to-bridge frequencies and established technical requirements and penalties for non-compliance with the Act or regulations.

g. *Title 33 U.S. Code 1223.* Authorizes the construction, operation, maintenance, improvement, or expansion of Vessel Traffic Services (VTS); and the Secretary to establish carriage requirements for specified navigation equipment, communications equipment, or other devices necessary to comply with vessel traffic services.

h. *International Association of Lighthouse Authorities "Guidelines for Vessel Traffic Services" (IMO Resolution A.578[14]).* This states that the VTS organization should be equipped to use the appropriate frequencies, as prescribed in Appendix 18 or Radio Regulations, including the international distress, safety, and calling frequencies.

i. *Communications Act (47 USC 357).* Gives the FCC authority to require radios on vessels for distress purposes and requires "authorities of the United States: to promptly provide warnings to those concerned."

j. *Commercial Fishing Industry Vessel Safety Act of 1988.* Requires fishing industry vessels to carry radios for communications with the USCG for distress and safety purposes; gives USCG authority to require radios on fishing industry vessels.

k. *Safety of Life at Sea (SOLAS) Convention.* Chapter IV.8 and 17 requires certain vessels to carry VHF radiotelephones, and to keep watch on Channel 16 (156.8

MHz). Chapter V.3 and 4 requires governments to relay danger reports and meteorological warnings to ships.

l. *1988 Amendments to SOLAS-Global Maritime Distress and Safety System (GMDSS).* Requires all ships subject to the Convention to carry Digital Selective Calling- (DSC) equipped radios, phased in during the period 1992 - 2005. Ships will discontinue Channel 16 watch keeping on 1 February 2005.

m. *International Telecommunications Union Radio Regulations.* Provides maritime distress frequencies and procedures. RR3057 requires coast stations "which form an essential part of the coverage of the area for distress purposes" to "maintain an effective aural watch" on Channel 16.

n. *1987 Amendments to the ITU Radio Regulations.* Provides for DSC on marine radio, establishes DSC distress procedures, and requires coast stations assuming watch keeping responsibility in the GMDSS to maintain automatic DSC watch keeping on the distress channel (RR N3075).

o. *Agreement Between the United States and Canada for Promotion of Safety on the Great Lakes by Means of Radio, 1973.* Provides for VHF radiotelephone carriage on ships.

2. Regulations

a. *Manual of Regulations and Procedures for Federal Radio Frequency Management* (mandated for federal agencies under 47 CFR 300). Requires federal ships on Great Lakes and in U.S. waters to carry VHF radio. Requires "Government ship and coast stations, during their hours of service of VHF radiotelephone (to) maintain a watch for reception of 156.8 MHz whenever practicable."

b. *FCC Telecommunications Regulations, 47 CFR 80.* Requires several categories of ships to carry VHF radios for communications with the USCG for distress and safety purposes; provides maritime distress frequencies and procedures. 47 CFR 80 was revised in 1992 to incorporate DSC requirements on ships subject to the Communications Act.

c. *USCG Shipping Regulations, 46 CFR 28.* Requires fishing vessels to carry VHF radios for communications with the USCG for distress and safety purposes.

d. *Navigation Regulations, 33 CFR 26.* Implements the provisions of the Vessel Bridge-to-Bridge Radiotelephone Act (U.S. Code 1201-1208). The regulation makes provisions for vessels to engage in radio communications with USCG and other vessels and shore stations to obtain or furnish information necessary for the safe navigation of vessels.

3. Policies

a. According to the *Telecommunications Manual (COMDTINST M2000.3B)*, which should, but does not, include VTS:

(1) Operational Commanders shall have adequate telecommunications equipment to properly and promptly handle both operational communications and distress, urgent, and safety information.

(2) Operational Commanders shall have the capability to communicate rapidly with operating units under their control.

(3) The USCG shall maintain the capability to transmit Marine Information Broadcasts into its areas of responsibility in a form usable by the recipient.

(4) The USCG shall maintain a capability to communicate directly with merchant ships, fishing vessels, and recreational boats.

(5) The USCG shall provide a comprehensive distress telecommunications system along the coast and on large inland waters of the U.S. and its possessions.

(6) The USCG shall have the capability to communicate directly with the maritime public, port, and local emergency services, and local/state modal and environmental enforcement personnel.

(7) The USCG shall have the capability to monitor and record bridge-to-bridge radiotelephone conversations on Channel 13 in order to enforce the provisions of the Bridge-to-Bridge Radiotelephone Act.

b. *Coast Guard Regulations (COMDTINST M5000.3B)* require:

(1) Every effort to obtain from reliable sources, foreign or otherwise, all information that will aid in safely navigating over proposed routes or into ports to be visited.

(2) Special care be taken so that all precautions required by the applicable laws and regulations to prevent collisions and other accidents on any waters are observed.

c. SAR Program Description stipulates the following major program activities:

(1) Maintain and improve a communications network capable of receiving calls directly from the mariner in distress.

(2) Encourage the development and installation of a nationwide shore-based VHF Direction Finding System.

(3) Continually review new technology that might improve the effectiveness and efficiency of the Alert Phase of a SAR case.

d. *Federal Communications Commission (FCC)/Office of Telecommunications Policy (OTP), and Interdepartment Radio Advisory Committee (IRAC) 1968* action that designated Channel 16 as the National Maritime Distress Frequency. Previously, Channel 16 was designated a safety frequency, but not a distress frequency within the U.S. Internationally, it had been both a safety and distress frequency since 1946.

e. FCC 1970 action that designated the VHF-FM Radiotelephone system as the required short-range communications system. This was accomplished by limiting the issuance of HF single sideband (SSB) licenses to vessels. The FCC action forbade the use of double sideband (DSB) radios completely and prohibited the installation of SSB radios unless the vessel already had a VHF-FM marine band radio installed and the vessel's owner could show a need for the SSB radio.

f. *The National Security Decision Directive 145 (NSDD 145)* directs that unclassified information which could adversely affect national security interests be protected in proportion to the threat of exploitation and the associated potential damage to national security.

4. ***Memorandum of Agreement (MOA).*** FCC and USCG MOA of May 1983 formalizes the common goal of both agencies towards increasing awareness of radio procedures by the boating public. Encourages cooperation between FCC regional offices and USCG District personnel. Works towards adjusting duplication of efforts. Provides direction finding service, frequent consultation, and coordinated efforts towards the identification, location, and prosecution of radio violation reports.

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DEPARTMENT OF TRANSPORTATION

Coast Guard

[USCG–1998–3584]

Proposed Modernization of the Coast Guard National Distress and Response System

AGENCY: Coast Guard, DOT.

ACTION: Notice of intent to prepare a Supplemental Program Environmental Assessment.

SUMMARY: The U.S. Coast Guard intends to prepare a Supplemental Program Environmental Assessment (SPEA) for the National Distress and Response System Modernization Project (NDRSMP). The SPEA will supplement our July 1998 Programmatic Environmental Assessment (PEA) with respect to modernizing and deploying the National Distress and Response System (NDRS) and it will examine reasonable alternatives for the deployment of dual mode VHF/UHF radio equipment to either an existing NDS antenna tower site, antenna tower space leased from a commercial provider, or new construction of an antenna tower site. We are requesting early public input on these alternatives and the potential for environmental impacts as a result of implementing them.

DATES: Comments and related material must reach the Docket Management Facility on or before June 24, 2002.

ADDRESSES: To make sure your comments and related material are not entered more than once in the docket, please submit them by only one of the following means:

(1) By mail to the Docket Management Facility (USCG–1998–3584), U.S. Department of Transportation, Room PL–401, 400 Seventh Street, SW., Washington, DC 20590–0001.

(2) By delivery to Room PL–401 on the Plaza level of the Nassif Building, 400 Seventh Street, SW., Washington DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The telephone number is 202–366–9329.

(3) By fax to the Docket Management Facility at 202–493–2251.

(4) Electronically through the Web Site for the Docket Management System at *http://dms.dot.gov.*

In choosing among these means, please give due regard to recent difficulties and delays associated with delivery of mail through the U.S. Postal Service to Federal facilities.

The Docket Management Facility maintains the public docket for this notice. Comments and material received from the public, as well as this notice, will become part of this docket and will be available for inspection or copying at Room PL–401 on the Plaza level of the Nassif Building, 400 Seventh Street, SW., Washington DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. You may also find this docket on the Web Site at *http://www.dms.dot.gov.*

FOR FURTHER INFORMATION CONTACT: If you have questions on this notice, the proposed project, or the associated assessment, call Donna M. Meyer, Environmental Program Manager, National Distress and Response System Modernization Project, U.S. Coast Guard Headquarters, 202–267–1496 or e-mail her at *dmeyer@comdt.uscg.mil.* For questions on viewing or submitting material to the docket, contact Dorothy Beard, Chief, Dockets, Department of Transportation, 202–366–5149.

SUPPLEMENTARY INFORMATION:

Request for Comments

We encourage you to submit comments and related material on our Supplemental Program Environmental Assessment. If you do so, please include your name and address, identify the docket number for this notice (USCG–1998–3584), and provide background support for each comment. You may submit your comments and material by mail, hand delivery, fax, or electronic means to the Docket Management Facility at the address under **ADDRESSES**; but please submit your comments and material by only one means. When submitting by mail or hand delivery, submit your comments or material in an unbound format, no larger than 8½ by 11 inches, suitable for copying and electronic filing. If you submit them by mail and would like to know if the comments and/or material were received by the facility, please enclose a stamped, self-addressed postcard or envelope. The Coast Guard will consider all comments and material received during the comment period.

Public Hearing

We do not now plan to hold a public hearing. But you may submit a request for one to the Docket Management Facility at the address under **ADDRESSES** explaining why one would be beneficial. If we determine that one would aid us in preparing the SPEA, and would significantly aid in our environmental review and analysis for the proposal, we will hold one at a time and place announced by a later notice in the **Federal Register.**

Background

The National Distress and Response System forms the backbone of the Coast Guard's Short Range Communication System (SRCS) that supports Coast Guard Activity, Group, Marine Safety Office (MSO), Vessel Traffic Service (VTS), Air Station, Cutter and Station operations. As part of the SRCS, the NDRS incorporates the use of VHF–FM radios to provide two-way voice communications coverage for the majority of Coast Guard missions in coastal areas and navigable waterways where commercial and recreational traffic exists. The system, consisting of approximately 300 remotely controlled VHF transceiver sites, monitors the international VHF–FM maritime distress frequency (Channel 16), and is the primary command and control network to coordinate Coast Guard search and rescue (SAR) response activities. The secondary function is to provide command, control, and communications for the Coast Guard missions of national security, maritime safety, law enforcement, and marine environmental protection.

In July 1998, the Coast Guard published a Programmatic Environmental Assessment that considered general concepts to modernize the current obsolete and nonstandard system. The alternatives we considered included:

Alternative A—Status quo.

Alternative B—Upgrade status quo by systematically upgrading the existing network with modern analog transceivers. This alternative replaces old equipment with new equipment and adds additional radio capability. It is expected this alternative would require additional antenna sites.

Alternative C—Dual mode VHF and/or UHF network replaces existing analog network with dual mode (digital and analog) transceivers. It is expected this alternative would require additional antenna sites. And,

Alternative D—Multi-mode: Satellite, cellular, VHF and/or UHF network. This alternative replaces the existing network with multi-mode equipment that utilizes satellite, cellular, and VHF/UHF communications. It is expected that this alternative would require additional antenna sites.

Alternatives B, C, and D would all require approximately the same number of additional antenna sites. Since 1998, new circumstances and relevant information regarding the deployment of the system to an existing antenna site, or leasing an antenna site, or constructing a new antenna site as well as the Coast Guard's preference for

Alternative C, call for a Supplemental Program Environmental Assessment to consider any environmental impacts that were previously not taken into account.

Supplemental Programmatic Environmental Assessment

Pursuant to the National Environmental Policy Act (NEPA) of 1969, and the President's Council on Environmental Quality Regulations (40 CFR parts 1500–1508), we intend to prepare a Supplemental Program Environmental Assessment for the National Distress and Response System Modernization Project.

Information, data, and comments obtained throughout the course of the Scoping process may be used in the preparation of the SPEA. The purpose of this notice of intent is to inform the public, local, State, and Federal government agencies that a Supplemental PEA will be prepared.

In addition, the SPEA will provide those interested with an opportunity to present their comments, information, or other relevant observations concerning alternatives and potential environmental impacts relating to the deployment and installation of the NDRSMP. Alternatives under consideration include: (1) Taking no action; (2) deployment to existing antenna tower sites; (3) leasing antenna space on an existing tower; and (4) new construction of a tower site.

Our efforts to coordinate with appropriate Federal, State and local agencies, and private organizations and citizens who have expressed interest in this proposal will continue. The SPEA will be made available for public and agency review and comment. To ensure that the full range of issues related to the proposed action are addressed and that all significant issues are identified, we invite your comments and suggestions.

Dated: May 17, 2002.

C.D. Wurster,

RADM, U.S. Coast Guard, Assistant Commandant for Acquisitions.

[FR Doc. 02–13130 Filed 5–23–02; 8:45 am]

BILLING CODE 4910–15–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

Forum in Capabilities of the Global Positioning System (GPS) Wide Area Augmentation System (WAAS) and Local Area Augmentation System (LAAS)

AGENCY: Federal Aviation Administration, DOT.

ACTION: Notice of meeting.

Name: FAA SOIT Forum on GPS/WAAS/LAAS Capabilities.

Time and Date: 9 a.m.–5 p.m., June 3–4, 2002.

Place: Holiday Inn Fair Oaks Hotel, 11787 Lee Jackson Memorial Hwy, Fairfax, Virginia 22033.

Status: Open to the aviation industry with attendance limited to space available.

Purpose: The FAA SOIT will be hosting a public forum to discuss the FAA's GPS approvals and WAAS/LAAS operational implementation plans. This meeting will be held in conjunction with a regularly scheduled meeting of the FAA SOIT and in response to aviation industry requests to the FAA Administrator. Formal presentations by the FAA will be followed by question and answer sessions. Those planning to attend are invited to submit proposed discussion topics.

Registration: Participants are requested to register their intent to attend this meeting by May 31, 2002. Names, affiliations, email addresses, telephone and facsimile numbers should be sent to the point of contact listed below.

Point of Contact: Registration and submission of suggested discussion topics may be made to Mr. Steven Albers, phone (202) 267–7301, fax (202) 267–5086, or email at *steven.CTR.albers@faa.gov.*

Issued in Washington DC on May 3, 2002.

Hank Cabler,

SOIT Co-Chairman.

[FR Doc. 02–13134 Filed 5–23–02; 8:45 am]

BILLING CODE 4910–13–M

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

[Docket No. NHTSA–2002–12317]

Notice of Receipt of Petition for Decision that Nonconforming 1997–2000 Mercedes Benz SL Class (W129) Passenger Cars Are Eligible for Importation

AGENCY: National Highway Traffic Safety Administration, DOT.

ACTION: Notice of receipt of petition for decision that nonconforming 1997–2000 Mercedes Benz SL Class (W129) passenger cars are eligible for importation.

SUMMARY: This document announces receipt by the National Highway Traffic Safety Administration (NHTSA) of a petition for a decision that 1997–2000 Mercedes Benz SL Class (W129) passenger cars that were not originally manufactured to comply with all applicable Federal motor vehicle safety standards are eligible for importation into the United States because (1) they are substantially similar to vehicles that were originally manufactured for importation into and sale in the United States and that were certified by their manufacturer as complying with the safety standards, and (2) they are capable of being readily altered to conform to the standards.

DATE: The closing date for comments on the petition is June 24, 2002.

ADDRESS: Comments should refer to the docket number and notice number, and be submitted to: Docket Management, Room PL–401, 400 Seventh St., SW., Washington, DC 20590. [Docket hours are from 9 am to 5 pm].

FOR FURTHER INFORMATION CONTACT: George Entwistle, Office of Vehicle Safety Compliance, NHTSA (202–366–5306).

SUPPLEMENTARY INFORMATION:

Background

Under 49 U.S.C. 30141(a)(1)(A), a motor vehicle that was not originally manufactured to conform to all applicable Federal motor vehicle safety standards shall be refused admission into the United States unless NHTSA has decided that the motor vehicle is substantially similar to a motor vehicle originally manufactured for importation into and sale in the United States, certified under 49 U.S.C. 30115, and of the same model year as the model of the motor vehicle to be compared, and is capable of being readily altered to

11000
May 20, 2002

Dear Federal, State, and Other Interested Parties:

The U.S. Coast Guard is preparing a Supplemental Program Environmental Assessment (SPEA) to its 1998 Programmatic Environmental Assessment (PEA) that was prepared for the proposed National Distress and Response Modernization Project (NDRSMP). The Coast Guard intends to update its obsolete distress and response system through modernizing the system so that continuous and comprehensive communications coverage can be achieved. The SPEA will address new project and environmental information expected as a result of modernizing and deploying the system. Since 1998, new circumstances and relevant information regarding the deployment of the system call for a Supplemental Program Environmental Assessment to consider any environmental impacts that were previously not taken into account in the 1998 PEA.

The purpose of this Scoping packet is to give you an early opportunity to participate in the environmental review process by submitting any comments you may have on the scope of the NDRSMP. The enclosed newsletter provides information regarding the proposed project, project status and planning steps, preliminary resource concerns, and reasonable alternatives for deployment of dual mode VHF/UHF radio equipment to either existing antenna tower sites, antenna tower sites leased from a service provider, or new construction of an antenna tower site.

The enclosed newsletter contains a comment form for you to provide any written comments you may have. Comments must be postmarked on or before June 24, 2002. Please review the enclosed newsletter and send any comments or concerns in writing to :

The Docket Management Facility
U.S. Department of Transportation (DOT)
Room PL-401
400 Seventh Street S.W.
Washington, D.C. 20590-0001

or;

deliver them to Room PL-401, Plaza Level, same address as above, between 10:00 a.m. and 5:00 p.m., Monday through Friday, except Federal holidays. The telephone number

to the Docket Management Facility is (202) 366-9329. Please submit all comments on paper that is 8 ½ by 11 inches, unbound, and suitable for copying and electronic filing to the DOT Docket. The Docket Management Facility will maintain public comments for this project, and all comments received will become available for inspection or copying in Room PL-401.

We appreciate your interest in our important project and look forward to receiving any comments you have to offer. If you need additional information, please contact Ms. Donna M. Meyer, of my staff, at (202) 267-1496.

Sincerely,

R.T. Hewitt
Captain, U.S. Coast Guard
Project Manager

National Distress and Response System Modernization Project

Supplemental Program Environmental Assessment

United States Coast Guard
Washington, D.C.

May 2002

Scoping Notice

The United States Coast Guard is proposing to update its obsolete National Distress System (NDS) in order to provide continuous and comprehensive communications coverage. The Coast Guard is preparing a Supplemental Program Environmental Assessment (SPEA) to assess any potential environmental effects of the proposed deployment and installation of the National Distress and Response System Modernization Project (NDRSMP).

In 1998, a PEA was prepared to assess alternative technologies for modernizing the NDS. As a result of that effort, the Coast Guard is proposing to modernize the NDS through the installation of state-of-the art, dual mode, VHF/UHF telecommunications technology.

The new technology would be installed throughout the terrestrial regions of the United States, including the Great Lakes and all major inland bays and waterways, Alaska, Hawaii, the Caribbean, and Guam.

This SPEA will assess the effects of deploying the preferred technology (Alternative C in the 1998 PEA) to an existing NDS antenna tower site, leasing space on an existing commercial tower site, or constructing a new antenna tower site. The SPEA analysis will enable the Coast Guard to tier site-specific analysis as sites are identified for modernization.

This notice marks the beginning of the SPEA process by requesting your comments on the scope of the NDRSMP.

Why Modernize the NDS?

The NDS forms the backbone of the Coast Guard's Short Range Communication System. This system uses VHF-FM radios to provide two-way voice communications coverage for most Coast Guard missions in coastal areas and navigable waterways with commercial or recreational traffic.

The NDS allows the Coast Guard to monitor the international VHF-FM distress frequency and to coordinate search and rescue response operations. The system provides command and control communications for Coast Guard missions performed in the coastal zone.

However, the NDS does not currently provide the Coast Guard with a reliable means of meeting its multi-mission requirements. Deficiencies in the current system include, but are not limited to, the following:

- *Obsolete/non-standard equipment.* Because the original system was installed in the 1970s, much of the existing equipment is no longer commercially available. New, non-standardized equipment must be purchased, resulting in a collection of non-standard, difficult-to-maintain equipment.
- *Coverage gaps.* The system does not provide complete coverage of the continental U.S. coastal areas, bays, inlets, and river systems. Over 65 verified gaps and numerous localized coverage deficiencies currently exist.
- *Inadequate channel capacity.* Communications traffic has far exceeded the capacity of the original design. As a result, the Coast Guard cannot simultaneously transmit information and adequately monitor the VHF-FM international distress frequency.
- *No digital selective calling capacity.* Digital Selective Calling equipped radios are required in Safety of Life at Sea-class vessels and increasingly will be used to monitor distress signals after February 2005. Because the NDS does not have this capability, the Coast Guard will become more and more limited in its ability to communicate with large segments of the maritime industry/public.
- *Inadequate transmission security.* The current system is severely limited in its ability to protect communications when transmitting sensitive information.

Project Status

The NDRSMP began in 1998 with the preparation of a Programmatic EA to assess alternative technologies for modernizing the NDS. The Phase I preliminary system design was completed in February 2002. Phase II (full scale development, production, and deployment of the new technology) will begin in October 2002, and the Coast Guard anticipates that the NDS will be completely modernized by October 2006.

Preparation of this SPEA began in late April 2002 and is expected to be complete before Phase II begins in October 2002.

The SPEA process, which is scheduled for completion in approximately 6 months, has three basic steps:

(1) identification of issues;

(2) development of the SPEA, which includes collection of data, formulation of alternatives, and assessment of the effects of the alternatives; and

(3) preparation of a Finding of No Significant Impact (FONSI), if appropriate.

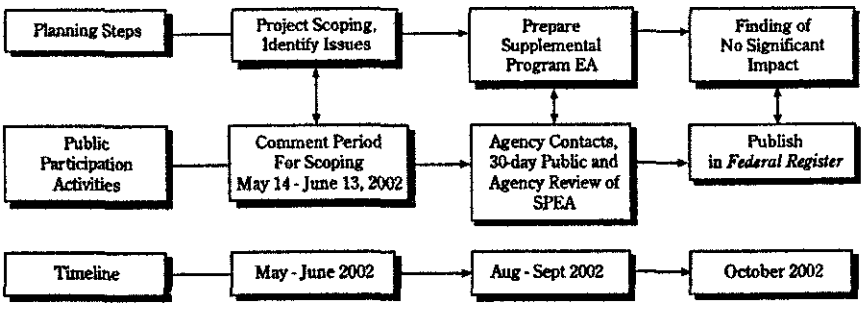
The steps of the SPEA process and the timeline for completing the SPEA are summarized in the flow chart below.

What are the preliminary resource concerns?

- *Earth Resources* - geology, topography, soils
- *Water Resources* - ground water, surface water
- *Biological Resources* - vegetation, wildlife, threatened and endangered species, migratory birds, floodplains, wetlands, DOT Act Section 4(f)
- *Land Use* - prime or unique farmlands, coastal zones, open space, zoning
- *Visual Resources* - aesthetics/ visual resources
- *Recreation* - recreational resources
- *Hazardous Materials and Wastes* - including radio waves
- *Air Quality* - air quality impacts
- *Cultural Resources* - archaeological, architectural, DOT Act Section 4(f)
- *Noise* - noise impacts resulting from any construction activities
- *Utilities/Infrastructure* - transportation, utilities availability, water quality and supply, solid waste disposal
- *Socioeconomics and Environmental Justice* - economy, employment, likelihood for environmental justice issues

How can interested parties participate in the project?

Throughout the SPEA process, the Coast Guard will maintain a mailing list for dissemination of information as well as a web site for the NDRSMP: *http://www.uscg.mil/hq/g-a/ndrsmp*



The first opportunity for public and agency participation is during the Scoping period, which begins on May 24, 2002. Your comments are important to us, particularly at this early stage in the process.

You may use the comment form accompanying this Scoping packet to submit written comments at any time during the Scoping period, which ends on June 24, 2002. Any comments or concerns should be submitted in writing to:

The Docket Management Facility
[USCG-1998-3584]
U.S. Department of Transportation
Room PL-401
400 Seventh Street S.W.
Washington, D.C. 20590-0001

or, deliver them to Room PL-401, Plaza Level, same address as above, between 10:00 a.m. and 5:00 p.m., Monday through Friday, except Federal holidays. Comments may be faxed to the Docket Management Facility at (202) 493-2251, or submitted electronically from the following web site *http://dms.dot.gov*

Please submit all comments on paper that is 8 ½ by 11 inches, unbound, and suitable for copying and electronic filing in the DOT Docket. The Docket Management Facility will maintain public comments for this project, and all comments received will become available for inspection or copying in Room PL-401.

When the SPEA is completed, the document will be released for a 30-day review and comment period. During those 30 days, written comments on the document will be accepted by the Coast Guard. Last, a FONSI will be prepared, if appropriate, and published in the *Federal Register*.

Anyone interested in more information or being added to the mailing list should contact the Coast Guard Environmental Program Manager for the NDRSMP, Donna M. Meyer, at (202) 267-1496.

Written Comment Form–NDRSMP

Thank you for your interest in our program. The purpose of this comment form is to give you an early opportunity to participate in the National Distress and Response System Modernization Project by submitting your comments on the scope of the project. You may use this form or a letter to make comments. Additional sheets may be attached if you need more space, but must be on 8½ x 11 sheets of paper. Fold the form so the Coast Guard address below is showing, and tape or staple the edges together to mail it. Please return your comments by June 24, 2002. Please give due regard to recent difficulties and delays associated with delivery of mail through the U.S. Postal Service to Federal facilities.

My concerns or comments regarding the National Distress and Response System Modernization Project are:

_____

_____

_____

_____

Please note: Your letter must be postmarked by June 24, 2002,
to ensure that your comments are considered during the Scoping process.

United States Coast Guard
2100 Second Street, S.W.
Room 4608
Washington, D.C. 20593

Place
Stamp
Here

The Docket Management Facility, [USCG-1998-3584]
U.S. Department of Transportation (DOT)
Room PL-401
400 Seventh Street S.W.
Washington, D.C. 20590-0001

Additional Comments

United States Coast Guard
2100 Second Street, S.W.
Room 4608
Washington, D.C. 20593

176415 USCG-1998-3584-38

Written Comment Form--NDRSMP

DEPT. OF TRANSPORTATION
DOCKETS

Thank you for your interest in our program. The purpose of this comment form is to give you an early opportunity to participate in the National Distress and Response System Modernization Project by submitting your comments on the scope of the project. You may use this form or a letter to make comments. Additional sheets may be attached if you need more space, but must be on 8½ x 11 sheets of paper. Fold the form so the Coast Guard address below is showing, and tape or staple the edges together to mail it. Please return your comments by June 24, 2002. Please give due regard to recent difficulties and delays associated with delivery of mail through the U.S. Postal Service to Federal facilities.

My concerns or comments regarding the National Distress and Response System Modernization Project are:

SHOULD THE PROJECT HAVE THE POTENTIAL TO AFFECT HISTORIC PROPERTIES. THE HISTORIC PRESERVATION REVIEW PROCESS, SECTION 106 (NHPA) SHOULD BE INITIATED.

Please note: Your letter must be postmarked by June 24, 2002, to ensure that your comments are considered during the Scoping process.

United States Coast Guard
2100 Second Street, S.W.
Room 4608
Washington, D.C. 20593

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The Docket Management Facility, [USCG-1998-3584]
U.S. Department of Transportation (DOT)
Room PL-401
400 Seventh Street S.W.
Washington, D.C. 20590-0001

Additional Comments

United States Coast Guard
2100 Second Street, S.W.
Room 4608
Washington, D.C. 20593

MAY 29 2002

Mr. Timothy Johns
State Historic Preservation Officer
Department of Land and Natural Resources
PO Box 621
Honolulu, HI 96809

96803+0621

176413 USCG-1998-3584-39

Written Comment Form—NDRSMP

Thank you for your interest in our program. The purpose of this comment form is to give you an early opportunity to participate in the National Distress and Response System Modernization Project by submitting your comments on the scope of the project. You may use this form or a letter to make comments. Additional sheets may be attached if you need more space, but must be on 8½ x 11 sheets of paper. Fold the form so the Coast Guard address below is showing, and tape or staple the edges together to mail it. Please return your comments by June 24, 2002. Please give due regard to recent difficulties and delays associated with delivery of mail through the U.S. Postal Service to Federal facilities.

My concerns or comments regarding the National Distress and Response System Modernization Project are:

Please note change of address on reverse

We look forward to receipt of SFEA &

Section 106 consultation.

[illegible] 5/30/02

Please note: Your letter must be postmarked by June 24, 2002, to ensure that your comments are considered during the Scoping process.

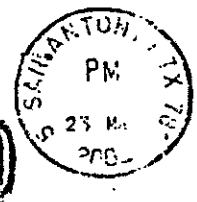
United States Coast Guard
2100 Second Street, S.W.
Room 4608
Washington, D.C. 20593

Place Stamp Here

The Docket Management Facility, [USCG-1998-3584]
U.S. Department of Transportation (DOT)
Room PL-401
400 Seventh Street S.W.
Washington, D.C. 20590-0001

Additional Comments

United States Coast Guard
2100 Second Street, S.W.
Room 4608
Washington, D.C. 20593



RECEIVED
MAY 29 2002
HISTORIC PRESERVATION OFFICE

Dr Jeffrey J. Crow
State Historic Preservation Officer
Division of Archives and History
~~109 East Jones Street~~
~~Raleigh, NC 27601~~
4617 MSC
Raleigh, NC 27699-4617

27601· 323

176610

Spokane Tribe of Indians
P.O. Box 100 • Wellpinit, WA 99040 • (509) 258-4581 • Fax 258-9243

CENTURY OF SURVIVAL
1881 - 1981

June 5, 2002

The Docket Management Facility
U.S. Department of Transportation (DOT)
{USCG-1998-3584} – 40
Room PL-401
400 Seventh Street SW
Washington, DC 20590-0001

Reference your documents preparing a Supplemental Program Environmental Assessment to its 1998 Programmatic Environmental Assessment that was prepared for the proposed National Distress and Response System Modernization Project.

After reviewing the newsletter attached to your letter of 20 May 2002, I find that I am concerned due to the absence of mention of the National Historic Preservation Act (NHPA). In particular mention of section 106 of the NHPA. As you know this section ensures that due consideration is given to the project impact on properties eligible for listing on the National Register of Historic Places, or properties listed on the National Register of Historic Places.

Because the area you will most impact is located near or on bodies of water the likelihood of your impacting cultural and/or sacred sites important to Native Americans is quite high and likely. Please ensure that the NHPA is included in your list of preliminary resource concerns.

Sincerely,

Louie J. Wynne, Tribal Historic Preservation Officer
Spokane Tribe of Indians,
PO Box 100
Wellpinit Wa 99040
(509)258-4315

177389

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240

Division of Migratory Bird Management
4401 N. Fairfax Drive, Suite 634
Arlington, VA 22203

02 JUN 25 AM 9:07

RECEIVED TRANSPORTATION

June 24, 2002

Captain R.T. Hewitt, USCG Project Manager
The Docket Management Facility
U.S. Department of Transportation (DOT)
{USCG-1998-3584}
Room PL-401
400 Seventh Street, SW
Washington, DC 20590-0001

Re: Docket Number USCG-1998-3584 - 41
Via Fax: 202/493-2251

Dear Captain Hewitt:

The Division of Migratory Bird Management, U.S. Fish and Wildlife Service (FWS or Service), is pleased to comment on the U.S. Coast Guard's (USCG) Supplemental Program Environmental Assessment (SPEA) for the proposed National Distress and Response System Modernization Project (NDRSMP) updating your ship-to-shore emergency communication system with state-of-the-art technology. Staff from both our Divisions of Migratory Birds and Habitat Conservation met on May 2nd here at FWS headquarters with staff from your office, including Ms. Donna Meyer, specifically to discuss this issue. The meeting was productive.

The FWS is very concerned about the exponential growth of communication towers nationwide, represented now by well over 120,000 towers in this country. These structures are estimated to kill from 4-5 to perhaps 40-50 million birds each year in the United States due primarily to collisions with these structures, representing not only a criminal violation of the tenets of the Migratory Bird Treaty Act (16 U.S.C. 703-712) and the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668C), but also a likely direct and possibly additive impact on populations of migratory birds. Of the 836 migratory bird species managed as a "trust responsibility" by the FWS, more than 221 are in trouble. These include 92 listed on the Federal Endangered Species Act (ESA; 16 U.S.C. 1531 *et seq.*, of which 78 are endangered and 14 are threatened), and 129 on the FWS's National List of Birds of Conservation Concern 2002, soon to be published. Of these species in trouble, some populations are declining precipitously. To add yet another challenge to managing birds, fully one-third of all North American bird populations essentially lack data on their status. These challenges make management difficult. Based on estimates of annual mortality from other anthropogenic causes – vehicle strikes, building and window collisions, power line electrocutions and strikes, wind turbine impacts, pesticide poisoning, oil spill mortality, and other human-related causes – anything that can be done to

reverse these mortality trends is of particular interest to the Service. This certainly includes dealing with bird collisions at communication towers.

The FWS published voluntary tower siting and placement guidelines in September 2000, which can be found on the web at, <http://migratorybirds.fws.gov/issues/towers.comtow.html>. We are especially pleased to learn that the USCG is seriously considering collocation as the primary option in upgrading your NDRSMP. From our May meeting, we understand that the Coast Guard plans to collocate this new technology on 300 existing towers, and build 77 new structures. Collocation is our number one recommendation when proposing new towers; it avoids construction of yet another structure.

According to your scoping notice, many of these new towers will be located in and around the Great Lakes, all major bays and waterways, Alaska, Hawaii, the Caribbean, and Guam. We are especially concerned that these wetland areas that attract many species of seabirds, waterfowl, shorebirds, wading birds, passerines, raptors, and other birds, could become problematic when towers are built on or next to them. There are numerous ESA-listed species, particularly in Hawaii, the Caribbean and Guam, that could also be impacted. Since most of these new towers are proposed for heights in excess of 200 feet (requiring pilot warning lights according to stipulations of the Federal Aviation Administration), we strongly encourage the USCG to use minimum intensity, maximum duration 'off' white strobe lights for night lighting. Since these new towers will be predominately located in wetlands, we also strongly encourage use of monopole or lattice tower construction rather than guyed towers. Lights and guys in combination, under inclement weather conditions, can spell disaster especially for night-migrating songbirds. The published record on this problem is extensive, dating back to 1949.

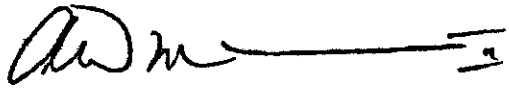
As we discussed at our May 2nd meeting, we also hope that the USCG will take the opportunity during siting, placement and construction of the proposed 77 new towers to fund and implement 2-3 year research studies on the impacts of these towers on migratory birds. In addition to avian monitoring (the Service has a monitoring protocol that currently is being used by the U.S Forest Service at 3 National Forests in Arizona for 3-year studies which could easily also be used by the USCG), other studies need to be conducted. These include impacts of solid and pulsating red lighting, and white and red strobes, tested at various intensities and durations (for the strobes) to better assess the attraction of lighting. The Service-chaired Communication Tower Working Group already has 3 peer-reviewed pilot study research proposals available for use, including one on lighting. Another research proposal looks at shorter towers which may apply to the 77 proposed USCG towers (assuming that do not greatly exceed 200 feet in height). Ongoing research into infrasound may provide a promising deterrent which would need to be tested under various replications. For existing towers that already are guyed, marker balls and other types of deterrents need to be tested, looking at both diurnally and nocturnally active (especially migrating) species. The Division of Migratory Bird Management would be glad to work with the USCG to help implement this important research.

Research into the 900 MHz microwave cellular phone band has uncovered under laboratory

conditions some frightening implications regarding the impacts of radiation on bird embryos. This has particular applicability for birds nesting and roosting on or around these cell phone towers. What impacts, if any, the 16 MHz band may have on birds is unknown but certainly merits a research effort. We would recommend that the USCG also consider studying radiation impacts on migratory birds. We would be pleased to help develop research protocols designed to test these questions about lighting, guys, deterrents, and radiation.

While the Service has serious concerns over migratory bird conservation and the maintenance of bird populations, we definitely do not want to compromise maritime safety. The opportunity to fund and implement research and answer gnawing questions about the impacts of USCG towers on migratory birds will hopefully protect birds, promote bird conservation, and allow the implementation of an up-to-date and effective NDRSMP. Thank you for allowing us to comment on this important issue. Should you have any questions, please feel free to contact me at 703/358-1963.

Sincerely yours,



Albert M. Manville, II, Ph.D.
Wildlife Biologist, and Chair,
Communication Tower Working Group

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE

ANGUS S. KING, JR.
GOVERNOR

EARLE G. SHETTLEWORTH, JR.
DIRECTOR

Post-it® Fax Note 7671	Date	# of pages ▶
To Docket Mgr	From F Esposito	
Co./Dept. DOT MARAD	Co.	
Phone # 7 1496	Phone #	
Fax # 3 7002	Fax #	

The Docket M
U.S. Departme
Room PL-401
4000 Seventh Street SW
Washington, DC 20590-0001

02 JUN 19 PM 2:59
DEPT. OF TRANSPORTATION

Project: MHPC #1107-02 - #11000, Maritime 911 System
Location: Statewide, ME

Dear Applicant:

In response to your recent request, I have reviewed the information received May 30, 2002 to initiate consultation on the above referenced project. This project was reviewed pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended.

Based upon the scope of work for this project, I have concluded that there is insufficient information to determine whether historic properties [architectural and archaeological] exist within the area(s) of potential effect. Therefore, we are requesting that information be submitted on a site-by-site basis for all new tower construction. The enclosed cell tower guidelines describe information we generally request for similar projects.

Our office will forward a response regarding the results of our evaluation for each new tower site subsequent to our receipt of site specific information. Please contact Mike Johnson of my staff if we can be of further assistance in this matter.

Sincerely,

Earle G. Shettleworth, Jr.
State Historic Preservation Officer

EGS/mj
enc:

PHONE: (207) 287-2132
FAX: (207) 287-2335

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

ANGUS S. KING, JR.
GOVERNOR

EARLE G. SHETTLEWORTH, JR.
DIRECTOR

Maine Historic Preservation Commission (MHPC)
Cell Tower Review Process & Requirements

MHPC Role & Responsibilities

In accordance with Section 106 of the National Historic Preservation Act, as amended, the State Historic Preservation Office (SHPO) reviews all projects that are federal, federally funded, or federally licensed. In Maine, the MHPC director is the SHPO and therefore reviews Federal Communications Commission (FCC) licensed projects, including cell tower installations. The purpose of this process is to identify and protect historic properties that are deemed eligible for or have been listed in the National Register of Historic Places.

As a part of the review process, MHPC assists in identifying *known* historic resources that could be affected by telecommunications installations. MHPC maintains documentation on properties that have been surveyed as well as those that are listed in the National Register of Historic Places (NRHP). This documentation is available by appointment.

A major component of the Section 106 review process is the identification of historic properties that may be eligible for, but are not yet listed in the NRHP. There are many of these in the State of Maine. It is the responsibility of the lead agency (FCC) or its designee (telecommunications companies, consultants, etc.) to conduct a thorough survey of the project area to ensure that these properties are identified. In order to meet this responsibility, MHPC requires basic information and photos of all properties over fifty years old to be submitted on the MHPC *Historic Building/Structure Survey Form*. This requirement fulfills two purposes; (1) it assists the MHPC in its evaluation of whether the structure is eligible for inclusion in the NRHP and (2) it helps to build an inventory of surveyed properties which, among other uses, can facilitate future project reviews.

Required Information for MHPC Review

Please use the following checklist when submitting materials involving new cell tower construction. Inclusion of all of these elements along with accurate documentation will facilitate MHPC review. If information is incomplete or inaccurate, a letter from MHPC will be sent indicating this; and the standard thirty (30) day review period will not begin until proper documentation is received. Also, please be aware that submission of all materials on the checklist does not guarantee that MHPC will not request additional information on occasion.

PHONE: (207) 287-2132

PRINTED ON RECYCLED PAPER

FAX: (207) 287-2535

MAINE HISTORIC PRESERVATION COMMISSION
55 Capitol Street
State House Station 65
Augusta, Maine 04333

Checklist for New Cell Tower Construction

1. Topographic map (USGS 7.5 minute, 8.5X11" B&W photocopy or color printout at same scale as original) clearly and accurately depicting the tower location, proposed Area of Potential Effect (APE)*, and the location of architectural resources over 50 years old within the APE; if the applicant retains the services of a 36 CFR 61 qualified professional whose resume is on file. If such professional services are not retained, we will require photos of *every* architectural resource within the APE.

2. Project description

3. Representative photographs of all buildings over fifty years old** must be submitted on the MHPC *Historic Building/Structure Survey Form*. Lines 3-5 of the form must also be filled out, and all forms must be keyed to the topographic map.

4. Photographic simulations of tower installations that may be visible from resources listed in or eligible for the NRHP. These photographs should be taken from the listed or eligible resources within view of the tower site and keyed to the topographic map.

5. Photographs that include "context views" of the area at the tower site and areas within proximity to the tower site.

6. Please keep in mind when submitting materials that the MHPC must be able to:
   1. Concur with your determination of the APE if altered from our general requirements.
   2. Determine whether structures over fifty years old are eligible for inclusion in the NRHP.
   3. Determine whether the proposed project will adversely effect NRHP-listed or eligible properties.

*For telecommunication towers up to 190', a 1-mile radius APE is required. For towers over 190' and/or lighted, the APE may be extended. If it is the intent of the applicant to utilize an APE that more accurately follows the line-of-sight/topography of the APE and this results in less than a 1-mile APE in any direction, the applicant will be required to furnish line-of-sight illustrations or 3-dimensional simulations justifying the modified APE.

**Photos need to be of sufficient quality to identify details such as clapboards, window muntins and other architectural details in order to determine whether the structure is eligible for inclusion in the National Register of Historic Places. In some cases, several photos may be required to make such a determination.

MARYLAND DEPARTMENT OF THE ENVIRONMENT
2500 Broening Highway o Baltimore Maryland 21224
(410) 631-4120

Parris N. Glendening
Governor

Merrylin Zaw-Mon
Acting Secretary

178770

July 1, 2002

USCG-98-3584-42

Ms. Donna Myer
USCG-1998-3584, Docket Management Facility
U.S. Department of Transportation
Room PL-401, 400 Seventh Street, SW
Washington DC 20590-0001

RE: State Application Identifier: MD20020611-0633
Project: Proposed National Distress and Response Modernization Project

Dear Ms. Myer:

Thank you for providing the Maryland Department of the Environment (MDE) with the opportunity to comment on the above-referenced project. Copies of the documents were circulated throughout MDE for review, and it has been determined that this project is consistent with MDE's plans, programs and objectives.

Again, thank you for giving MDE the opportunity to review this project. If you have any questions or need additional information, please feel free to call me at (410) 631-4120.

Sincerely,

Joane D. Mueller
MDE Clearinghouse Coordinator
Technical and Regulatory Services Administration

cc: Bob Rosenbush, State Clearinghouse

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
77 West Jackson Boulevard
Chicago, IL 60604

;41129

July 9, 2002

02 JUL 25 PM 12:00

DEPT. OF TRANSPORTATION

Docket Management Facility
US Department of Transportation
USCG-1998-3584/ - 43
400 Seventh Street, SW
Washington, DC 20590-0001

Regarding: Preliminary Scoping for a Supplemental Program Environmental Impact Statement

Dear Docket Management Facility:

The Environmental Planning and Evaluation Branch has received the document listed above. Under the National Environmental Policy Act (NEPA), the Council on Environmental Quality regulations, and Section 309 of the Clean Air Act; U.S. EPA reviews and comments on major federal actions. Typically, these reviews focus on Environmental Impact Statements, but we also have the discretion to review and comment on other environmental documents prepared under NEPA if interest and resources permit.

We did not undertake a detailed review of the document you sent to this office, and will not be generating comments because of the reason selected below.

_____The document was not prepared under NEPA.

_____The document was given a cursory review, but other workload priorities precluded us from detailed review and comment.

_____The document was given a cursory review, and we determined that there were no significant concerns meriting comment.

X_____We opted to wait for the next level of documentation on this project before deciding whether or not to comment.

We reserve the right to reconsider undertaking a review at future planning stages, or if significant new data on the project is made available by the sponsoring agency or other interested parties. Thank you for providing information on the project.

Sincerely,

Newton G. Ellens, for KW

Kenneth A. Westlake, Chief
Environmental Planning and Evaluation Branch

APPENDIX C

AIR POLLUTANT EMISSIONS CALCULATIONS

Estimated Pollutant Emissions from Existing Site Activities (Alternative B & C)

New Construction Area		ft^2	No. Sites	1	
Renovation Area	200.0	ft^2	No. Stories	2	S/M
Asphalt Area		ft^2	Depth		inches
Gravel/Dirt Area		ft^2	Depth		inches
Concrete Area		ft^2	Depth		inches
Demolition Building Area		ft^2			
Miscellaneous Land Area		ft^2			

Site Preparation for New Construction

Total Area of Site	0.0046	Acres (area disturbed by ground breaking)
Project Duration	21	Days

Construction Emissions

Construction Activity	CO (tons)	VOC (tons)	NO_X (tons)	SO_X (tons)	PM_{10} (tons)
Site Preparation/Ground Disturbance/Demo	0.0000	0.0000	0.0000	0.0000	0.0009
Emissions from Construction Equipment					
New Building Construction	0.0000	0.0000	0.0000	0.0000	0.0000
Existing Building Renovation	0.0023	0.0004	0.0052	0.0006	0.0003
Building Demolition	0.0000	0.0000	0.0000	0.0000	0.0000
Asphalt Paving Operations	0.0000	0.0000	0.0000	0.0000	0.0000
Gravel/Dirt Paving Operations	0.0000	0.0000	0.0000	0.0000	0.0000
Concrete Paving Operations	0.0000	0.0000	0.0000	0.0000	0.0000
Total Emissions	**0.0023**	**0.0004**	**0.0052**	**0.0006**	**0.0013**

Notes:

It was assumed that equipment used to renovate a building and tower would be equivalent to that of a two story building with the same surface area.

Estimated Pollutant Emissions from Existing Site Activities (Alternative B & C)					
New Construction Area		ft^2	No. Sites	1	
Renovation Area	200.0	ft^2	No. Stories	2	S/M
Asphalt Area		ft^2	Depth		inches
Gravel/Dirt Area		ft^2	Depth		inches
Concrete Area		ft^2	Depth		inches
Demolition Building Area		ft^2			
Miscellaneous Land Area		ft^2			
Site Preparation for New Construction					
Total Area of Site	0.0046	Acres (area disturbed by ground breaking)			
Project Duration	21	Days			

Construction Emissions					
Construction Activity	CO (tons)	VOC (tons)	NO_X (tons)	SO_X (tons)	PM_{10} (tons)
Site Preparation/Ground Disturbance/Demo	0.0000	0.0000	0.0000	0.0000	0.0009
Emissions from Construction Equipment					
New Building Construction	0.0000	0.0000	0.0000	0.0000	0.0000
Existing Building Renovation	0.0023	0.0004	0.0052	0.0006	0.0003
Building Demolition	0.0000	0.0000	0.0000	0.0000	0.0000
Asphalt Paving Operations	0.0000	0.0000	0.0000	0.0000	0.0000
Gravel/Dirt Paving Operations	0.0000	0.0000	0.0000	0.0000	0.0000
Concrete Paving Operations	0.0000	0.0000	0.0000	0.0000	0.0000
Total Emissions	**0.0023**	**0.0004**	**0.0052**	**0.0006**	**0.0013**

Notes:

It was assumed that equipment used to renovate a building and tower would be equivalent to that of a two story building with the same surface area.

Emissions from Stand-by Generator

Constants			
HV of Diesel	137080	BTU/gal	
hp to BTU/hr	7000	Btu/hp-hr	Source: EPA AP-42 Table 3.3-1
Gen Efficiency	0.36		Source: Perry's Chemical Engineers Handbook 7th Edition, page 24-14
Max Hours	12	hr/yr	
Total Capacity	68	hp	
Hourly Rate	1.32	MMBtu/hr	
Annual Use	15.87	MMBtu/yr	

Emission Factors - AP-42		
PM	0.31	lb/MMBtu
PM10	0.3	lb/MMBtu
CO	0.95	lb/MMBtu
NOx	4.41	lb/MMBtu
SOx	0.29	lb/MMBtu
Total VOCs	0.36	lb/MMBtu
Total HAP	0.003874	lb/MMBtu

Emissions		
PM	0.002459	tpy
PM10	0.00238	tpy
CO	0.007537	tpy
NOx	0.034986	tpy
SOx	0.002301	tpy
Total VOCs	0.002856	tpy
Total HAP	3.07E-05	tpy

Average Construction Equipment Usage Rates (hours)									Equipment Emission Factors (from AP-42, Volume 2 - Mobile Sources)				
	New Construction		Existing Facilities			Paving Operations							
Construction Equipment	Single Story (per 1,000 ft²)	Multi-Story (per 1,000 ft²)	Single Story (per 1,000 ft²)	Multi-Story (per 1,000 ft²)	Demolition (per 1,000 ft²)	Asphalt (per 1,000 yd²)	Gravel/Dirt (per 1,000 yd²)	Concrete (per 1,000 yd³)	CO (lb/hr)	VOC (lb/hr)	NO_X (lb/hr)	SO_X (lb/hr)	PM_{10} (lb/hr)
Backhoe	2.690	2.194	0.666	0.225	-	-		-	1.794	0.304	1.260	0.137	0.112
Blower	-	-	-	-	-	16.000		-	12.100	0.410	0.320	0.017	0.021
Bulldozer	1.183	1.387	0.372	0.106	-	6.154	6.154	16.000	1.257	0.425	3.840	0.463	0.406
Concrete Truck	7.528	3.764	0.753	0.376	-	-		203.262	1.794	0.304	4.166	0.454	0.256
Crane	10.334	15.545	1.894	1.040	3.000	-		-	0.675	0.018	1.691	0.143	0.139
Dump Truck	4.228	3.401	0.961	0.239	7.960	10.954	40.129	40.129	1.794	0.304	4.166	0.454	0.256
Front-end Loader	2.680	2.518	0.771	0.184	4.000	-	16.000	16.000	0.572	0.291	1.890	0.182	0.172
Paver	-	-	-	-	-	8.000		-	0.675	0.183	1.691	0.143	0.139
Roller	-	-	-	-	-	23.906	23.906	-	0.304	0.083	0.862	0.067	0.050
Scraper	-	-	-	-	-	4.800		-	0.151	0.052	0.713	0.086	0.061
Striper	-	-	-	-	-	16.000		-	12.100	0.410	0.320	0.017	0.021
18-Wheel Truck	28.080	30.055	5.268	2.484	-	-		182.166	1.794	0.304	4.166	0.454	0.256

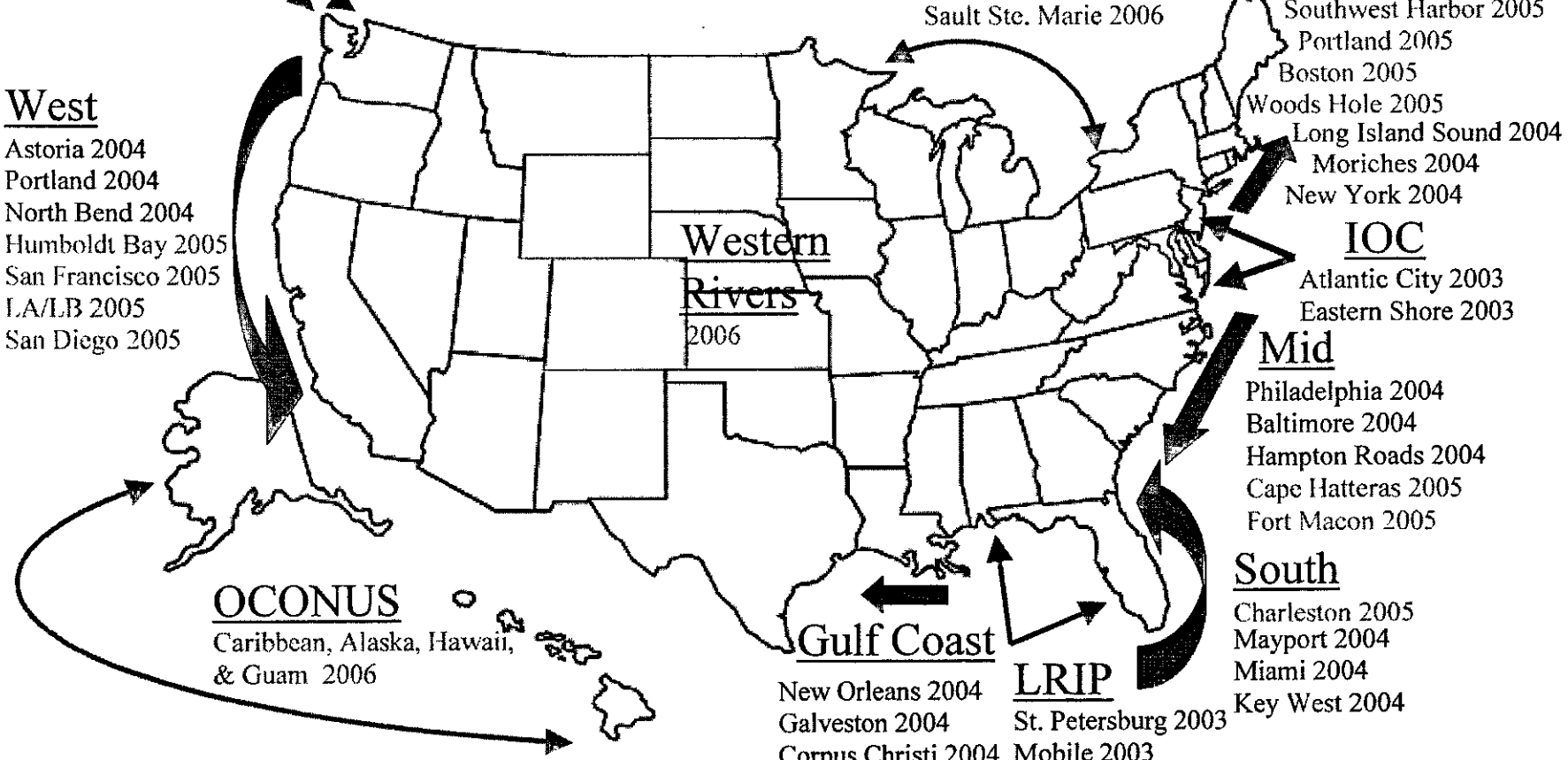
Construction Equipment Emission Factors								
	New Construction		Existing Facilities			Paving Operations		
Pollutant	Single Story (lb/1,000 ft²)	Multi-Story (lb/1,000 ft²)	Single Story (lb/1,000 ft²)	Multi-Story (lb/1,000 ft²)	Demolition (lb/1,000 ft²)	Asphalt (lb/1,000 yd²)	Gravel/Dirt (lb/1,000 yd²)	Concrete (lb/1,000 yd³)
CO	86.288	84.385	15.907	6.907	18.594	427.979	96.146	792.713
VOC	14.400	13.588	2.742	1.129	3.639	22.763	21.455	140.825
NO_X	196.431	194.193	36.013	15.714	45.795	117.062	241.654	1,864.549
SO_X	20.968	20.522	3.844	1.670	4.771	11.515	25.581	203.523
PM_{10}	12.877	12.931	2.409	1.038	3.143	8.575	16.719	118.190

VOC Emissions from Asphalt Evaporation	
Density of Asphalt	56.1039 lb/ft²
Weight Percent of Asphalt which Evaporates	5 %

APPENDIX D

NDRSMP INSTALLATION SCHEDULE

NDRSMP Installation Schedule



LRIP
Seattle 2003
Port Angeles 2003

Great Lakes
Buffalo 2005
Detroit 2005
Grand Haven 2005
Milwaukee 2006
Sault Ste. Marie 2006

North East
Southwest Harbor 2005
Portland 2005
Boston 2005
Woods Hole 2005
Long Island Sound 2004
Moriches 2004
New York 2004

West
Astoria 2004
Portland 2004
North Bend 2004
Humboldt Bay 2005
San Francisco 2005
LA/LB 2005
San Diego 2005

Western Rivers
2006

IOC
Atlantic City 2003
Eastern Shore 2003

Mid
Philadelphia 2004
Baltimore 2004
Hampton Roads 2004
Cape Hatteras 2005
Fort Macon 2005

South
Charleston 2005
Mayport 2004
Miami 2004
Key West 2004

OCONUS
Caribbean, Alaska, Hawaii, & Guam 2006

Gulf Coast
New Orleans 2004
Galveston 2004
Corpus Christi 2004

LRIP
St. Petersburg 2003
Mobile 2003

IOC: Initial Operating Capability
LRIP: Low-Rate Initial Production

U.S. Department of Transportation

APPENDIX B

PUBLIC INVOLVEMENT